One of the Publications Owned and Published by CHILTON COMPANY

ROBERT E. McKENNA, Publisher

A. W. GREENE, Editor

WILLIAM A. BARBOUR
Managing Editor

JAMES S. PATTERSON
Associate Editor

GEORGE BAKER
RAY M. STROUPE
NEIL R. REGEIMBAL
Washington News Editors

ELWYN KNIGHT
West Coast Editor

HOWARD KOHLBRENNER
Art Director

GEORGE POST
Production Manager

MARCUS AINSWORTH
Statistician

CONSULTANTS
Legal: Leo T. Parker
Materials Handling: Matthew W. Potts
D. O. Haynes
Transportation: John H. Frederick
Packing, Packaging: Jas. A. Sargeant

ADVERTISING STAFF

EASTERN STATES
H. S. Webster, Jr.
100 E. 42nd St., New York 17, N. Y.
Telephone: OXford 7-3400

CENTRAL STATES
Donald H. Waltz
859 Leader Bldg., Cleveland 14, Ohio
Telephone: SUperior 1-1080

MIDDLE WEST STATES
Kenneth A. Syfrit
30 N. Dearborn St., Chicago 2, Ill.
Telephone: FRanklin 2-0829

WESTERN STATES
Don May
1355 Market St., San Francisco 3, Cal.
Telephone: UNderhill 1-9737

JOS. S. HILDRETH, Board Chairman
G. C. BUZBY, President
Vice Presidents: P. M. Fahrendorf, Harry V. Duffy, Treasurer, William H. Vallar; Secretary, John Blair Moffett; Directors, George T. Hook, Maurice E. Cox, Tom C. Campbell, Frank P. Tighe, Leonard V. Rowlands, Robert E. McKenna, Irving E. Hand, Everett B. Terhune, Jr., Russell W. Case, Jr., Jack C. Hildreth; Washington Member of the Editorial Board, Paul Wooton.

Executive, Editorial & Advertising Offices: Chestnut & 56th Sts., Philadelphia 39, Pa. GRanite 4-5600

BPA NBP MPA

Accepted as controlled circulation publication at Philadelphia, Pa.

Copyright 1955, by Chilton Co. (Inc.)

Published monthly. Subscription rates: U. S. $5 per year; Canada, $5.50 per year; Foreign Countries, $6 per year. Single Copies 50¢ each, except February Directory Number—$4 per copy.

DISTRIBUTION AGE

ESTABLISHED 1901

Vol. 54, No. 8 August, 1955

CONTENTS

FEATURES

Rough Handling No. 1 Cause of Cargo Damage 27
Transportation, warehouse, and traffic executives say that rough handling causes cargo damage

World's Most Fragile Fruit Gets Pampered Handling ..... **Warren E. Crane** 28
The thin-skinned avocado demands special care to get it from tree to table—with a profit

Stolen Property Recoveries Hit All-Time High ..... **A. W. Greene** 30
In 1954, FBI recoveries of goods stolen from interstate shipments exceeded the $1 million mark

Does Private Carriage Pay? ..... **James J. Walsh** 32
Here is a formula to help you judge the advisability of setting up your own truck service

Batch Billing Bonanza in Grocery Warehousing ..... **James W. Rowe** 34
Electronic billing system effects manhour savings, lowers operating cost and speeds schedule

French Railway Rates Use Variety of Bases ..... **G. Lloyd Wilson** 37
The cost of performing services and competition determine the variety of railway rate bases

The Hoover Report on Depot Utilization ..... **John H. Frederick** 38
Excess of storage space, duplication and waste included in $3.5 billion cost to taxpayers

DA Handling Equipment Primer—IV ..... **D. O. Haynes** 40
A continuation of the principles involved in package belt conveying systems with metal belts

DEPARTMENTS

On The Line 9
Letters to the Editor 10
Coming Events 17
Chuting the News 17
Men in the News 20
Washington DA 23
New Products 46
DA Readers Service Card 49
Free Literature 52
Within the Law 64
Warehouse Spotlight 65
Classified Advertising 96

"Mac—we can't risk
a shipping delay. These lots must
be delivered by Thursday
...or else they'll cancel!"

On the Line—

Help From the FBI

ONE day, a few months ago, we turned into the driveway of a manufacturer of radio and TV equipment to call on the traffic manager. We almost didn't make it. Another car whizzed by us so closely that it shaved off the paint on the left side of our automobile—to say nothing of some hair off our head and years off our life.

We said nothing about this to the TM until an hour later. Then, an assistant came into his office in a lather, saying a shipping clerk had just chased some men who had stolen packages off the dock and escaped in an automobile.

Naturally much excited conversation developed. In our best Sergeant Friday manner we opined, albeit with reservations, that this looked like an inside job. We cited the fact that what probably was the getaway car whizzed by us but no one was chasing it, as claimed by the shipping clerk; moreover, how come the hour's delay in reporting the theft?

Our hunch turned out to be right. In the following weeks, being attuned to such matters by our experience, we read newspaper reports about other commodity and cargo thefts. We got to thinking: We must be right in the middle of an epidemic! So off to the FBI we go; natch, what else?

That, minus few details, is the story behind a new series of articles launched with the help of the FBI, on Page 30.

In our research for these articles, we learned many things which have brought us to this conclusion: Unless shipper-carrier policing of cargoes improves considerably, the volume of such thefts will go on menacingly upward.

The fact that the FBI shows high recovery will not, alone, check future thefts. The check must be made by those responsible for the handling and movement of cargoes. They, at least, can stop the most insidious thefts—the petty pilferings, whose total often far exceeds the more sensational highjackings.

The first step is to indoctrinate every employee that he has a moral obligation to safeguard the commodities that pass through his hands—actually or on paper. Next month, we'll spell out 11 theft prevention steps, and methods of detecting and apprehending offenders, as advised by the FBI.

Not only should this help prevent theft, improve customer relations, reduce claims and insurance premiums, but it may save lives; the pursuit of thieves is fraught with danger.

And if we should chance to turn into your driveway for a visit, there'll be less of a chance that we'll experience the close shave we got at the aforementioned radio-TV plant.

Yakkety Yak

Among our recent contacts about pilferage and hijacking was the claims supervisor of a whisky distillery. He said his big problem was shortages: "No one ever complains about OVERS."

. . . "Once," he said, "a driver, swaying like a sailor on high seas, brought in 12 corks as proof of damage to a case of whisky."

. . . "I smell whisky on your breath," said the supervisor, "how come?"

. . . "Well, as the case dropped I said 'Oh!' Can I help it if some splashed up into my mouth?"

SEEIN' PINK: On New York's Park Avenue the other day we thought we were seeing pink elephants rolling under a flashy convertible. Turned out to be pink side walled tires.

. . . Made by Goodyear, they're detachable and come in pink, red, yellow, blue, green and white.

TRAFFIC TANGLES: Los Angeles police want to buy a big helicopter to lift damaged cars off the highway. Now, one crash creates a bottleneck that lasts for hours.

. . . Vehicular clashes on Michigan highways are so bad that the governor has the National Guard patrol major highway intersections over the weekends.

. . . New York's heavy traffic has a new problem. Parking in Brooklyn's lovers' lanes is so congested that the Borough police are considering installing parking meters.

H. W. Greene Editor

the Ultimate in Unitized Load Handling

Chestnut

POKE-PAK®

Costs so little It's Expendable!

MEAD board

POKE-PAK is a strong, hard and rigid piece of solid fiberboard weighing only about five pounds but supporting all the spot-glued bags your fork truck can lift. Specially made of chestnut and other hardwood fibers, Poke-Pak is smooth and free of nails and splinters that tear bags and cause losses.

GREATLY REDUCES TIME of loading and unloading, and saves many times the low cost of expendable Poke-Pak.

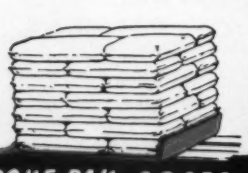
ENDS RETURN OF PALLETS, and accompanying credits, charge-backs and extra freight. Puts an end to costly car floor lining, too, since only the end walls need now be lined. So light and compact that 60 to 70 Poke-Paks can be stored in the space required for one wood or metal pallet. Poke-Pak is more economical in every way.

FREE CONSULTANT SERVICE is yours for the asking; carloading diagrams, bag patterns and samples of Poke-Pak, which can be made to fit any size bag unit, truck or car. Write for complete information, including interesting brochure on Poke-Pak and unitized load handling.

MEAD BOARD SALES, INC.
River Road, Lynchburg 2, Virginia

SALES OFFICES:

CINCINNATI 9, OHIO.....3347 Madison Road
CHICAGO 30, ILLINOIS.....6124 N. Milwaukee Avenue
NEWARK 2, NEW JERSEY.....10 Commerce Court
DETROIT 35, MICHIGAN.....18045 James Couzens Highway
BOSTON 10, MASSACHUSETTS.....43 Leon Street



POKE-PAK COSTS SO LITTLE IT'S EXPENDABLE

Circle No. 5 on Card, Facing Page 49, for more information

LETTERS
TO THE EDITOR

State Taxation

To The Editor:

We were quite interested in the comments made by Dr. Parker, DA Legal Consultant, in his article "Merchandise Stored by a Non-Resident Corporation is Not Subject to Taxation by State" (DA, December, 1954, Page 61). The recent higher court's decision "to the effect that merchandise stored in a warehouse is not taxable by the state" brings up the question: Is merchandise of a foreign corporation stored in a public warehouse subject to city and county taxation.

Richard A. Stuart,
Traffic Manager
The J. B. Williams Co.

A foreign corporation must pay county and city taxes on merchandise stored in a warehouse, provided it is not in the course of interstate transportation. If the goods are stored in a warehouse because of some good reason, not the fault of the shipper, as where a flood or other sudden emergency requires the storage for protection of the goods neither the state, county or city can tax the goods.

On the other hand, if a corporation in a foreign state merely ships merchandise into the state and stores same for future distribution such goods are taxable by the state, county or city.—Leo T. Parker, DA Legal Consultant.

Freight Equalization

To The Editor:

We would be pleased to receive any data covering the subject of freight equalization; also, law or laws which may govern the practice of basing point selling or freight equalization.

Floyd F. Beyers,
Ass't Traffic Manager
Public Service Co. of Colorado

The following are references:

"Freight Rate Application," by Glenn L. Shinn, Simmons-Boardman Publishing Co., 30 Church St., N. Y.

"Economics of Transportation," D. P. Locklin-Richard D. Irwin, 1818 Ridge Road, Homewood, Ill. (Basing-point pricing, pp. 33-34 and 63-64; Basing-point rate system, pp. 199-200.)

"Transportation," Bingham & Roberts, McGraw-Hill Publishing Co., 330 W. 42nd St., New York, N. Y. (Basing-point pricing, pp. 21, 32, 47; Basing-point rates, pp. 414-415, 450-451; Equalization of rates, pp. 20, 420, 424, 450, 464-470.)—John H. Frederick, DA Transportation consultant.

Chuting the NEWS

Coming Events

Aug. 7-9—Annual Assembly, Movers' Conference of America, Mayflower Hotel, Washington, D. C.

Aug. 24-28—New York State Warehousemen's Annual Convention Saranac Inn, Saranac Lake, N. Y.

Sept. 6-8—Material Handling Institute, Greenbrier Hotel, White Sulphur Springs, W. Va.

Sept. 8-9—Third Biennial Seminar, AST&T, co-sponsored by Harvard Univ., Boston, Mass.

Sept. 6-17—Production Engineering and Automation Exposition, Navy Pier, Chicago, Ill.

Sept. 15-18—Packaging Machinery Mfrs. Institute, annual meeting, The Homestead, Hot Sprngs, Va.

Sept. 18-21—National Truck Leasing System, Inc., 11th annual meeting, The Knickerbocker Hotel, Chicago, Ill.

Sept. 18-21—Associated Traffic Clubs of America, 32nd annual meeting, Hotel Cleveland, Cleveland, O.

Sept. 19-22—10th National Industrial Packaging and Materials Handling Exposition, SIPMHE, Kingsbridge Armory, New York.

Sept. 20—Southwestern Industrial Traffic League, Tyler, Texas.

Oct. 4-5—Middlewest Shipper-Motor Carrier Conference, third annual meeting, St. Paul, Minn.

Oct. 5-7—3rd Management Development Conference, United States Wholesale Grocers' Assn., Hotel Peabody, Memphis, Tenn.

Oct. 5-9—World Plastics Fair & Trade Exposition, National Guard Armory, Exposition Park, Los Angeles, Cal.

Oct. 9-14—The American Merchant Marine Conference, and the Propeller Club of the U.S., Convention, joint meeting, New Orleans.

Oct. 10-12—Joint Military-Industry Symposium on Packaging and Materials Handling, Washington, D. C.

Oct. 11-13—National Assn. of Shippers Advisory Boards, Pittsburgh, Pa.

Oct. 15-18—Conveyor Equipment Mfrs. Assn., annual meeting, Greenbriar, White Sulphur Springs, W. Va.

Oct. 17-21—43rd National Safety Congress and Exposition, Chicago.

Oct. 24-27—National Assn. of Railroad and Utilities Commissioners, annual convention, Asheville, N. C.

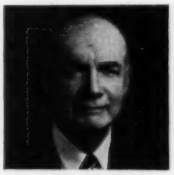
Nov. 9-11—19th Annual Time and Motion Study and Management Clinic, Sherman Hotel, Chicago.

ICC Reduced from Five to Four Divisions; Cross New Chairman, Mitchell Heads Division 1

The ICC has announced a reorganization of work assignments to the commissioners and three-man Divisions, and the elimination of one of the five existing Divisions.

The reorganization, effective July 1, abolished former Division One, Records and Investigations, and reassigned its work among the other Divisions and the commissioners. Divisions Five, the Motor Carrier Division, was renumbered Division One.

Cross



Mitchell

Commissioner Richard F. Mitchell, former chairman of the Commission, became chairman of the new Division One on July 1, the date on which Commissioner Hugh W. Cross became Commission Chairman. Commissioner Cross has been chairman of the Motor Carrier Division since 1953. His election as ICC chairman was announced June 21.

Commissioners Kenneth H. Tuggle and Everett Hutchinson, both of whom were members of the Motor Carrier Division, are serving on the new Division One.

Commissioner assignments to the other Divisions continue as follows:

Division Two — Commissioner Alldredge, chairman, and Commissioners Howard G. Freas and John H. Winchell.

Division Three—Commissioner Anthony F. Arpaia, chairman, and Commissioners Clarke and Freas.

Division Four — Commissioner J. Monroe Johnson, chairman, and Commissioners Elliott and Tuggle.

The reduction in the number of Divisions of the Commission to four is in line with recommendations of the Wolf Management Engineering Company, which made a study of the Commission's organization in 1953. Along with the numerous other changes already effected in ICC organization, which include a reduction in the number of Bureaus from 15 to 9, the new steps announced by the ICC bring closer to completion the reorganization moves contemplated in the Wolf company's report.

—DA—

SIPMHE Chapters Elect

Officers were named last month by four local chapters of SIPMHE. The chapters and their new presidents follow: Missouri-Kansas, A. F. Boerner, Acme Steel Products Div.; Eastern, Allyn C. Beardsell, Container Labroatories; Philadelphia, Philip A. Gelber, Naval Air Experimental Station; Maryland, K. C. Winter, Mathieson Corp.

—DA—

Common Carrier Conference Hears Transport Policy Report

The Board of Governors of the Regular Common Carrier Conference of the ATA, meeting in Minneapolis, Minn., June 20-24, heard Louis S. Rothschild, undersecretary of commerce for transportation, talk on "The Transport Policy Report."

(Please Turn Page)

Chuting the News . . .

(Continued from Preceding Page)

Defense Transport Administration is Abolished; All Functions and Personnel Transferred to ICC

Abolition of the Defense Transport Administration, effective July 1, has been announced by the ICC.

Commissioner Owen Clarke, administrator of DTA and responsible for supervision of the ICC's Bureau of Safety and Service, issued a DTA order abolishing the agency and delegating its functions to the Commission.

The Commission then delegated the functions to the commissioner responsible for supervision of the Bureau of Safety and Service, and directed that personnel, property and records of DTA be accepted on transfer and assigned to Commissioner Clarke. The 12 employees remaining of the 236 on DTA's rolls during the Korean conflict and ten consultants now are identified as the Transport Mobilization Staff, following their transfer to the Commission.

The Commission also directed that the senior member present of Division Three shall act for the commissioner responsible for supervision of the Bureau of Safety and Service, in his absence.

—DA—

Packaging, Handling Show In New York, Sept. 19-22

For the first time in its 10-year history, the 1955 10th Anniversary Industrial Packaging and Materials Handling Show, sponsored by SIPMHE, will be conducted in New York. The show and accompanying Short Course and Packaging Competition are scheduled for Sept. 19-22 in the Kingsbridge Armory.

According to latest reports, the 1955 show is ahead of all previous accounts—exhibitors, space, expected attendance, short course registrants, and competition entries. This year's short course is being conducted by NYU.

—DA—

Leonard Brothers Van and Storage Co., Detroit, recently celebrated its 75th anniversary.

—DA—

Pa. Raises Weight Limits

The governor of Pennsylvania last month signed into law a bill raising the state's 45,000-lb gross weight limit to 60,000 lb. The law also increases the axle-load limit from 20,000 to 22,400 lb.

Traffic Committee Named

Ninety-six men have been elected to membership on the trucking industry's National Traffic Committee for 1955-56. Second ballots will be called to fill two more vacancies, which resulted from tie votes in Virginia and South Carolina.

—DA—

The four-day NAVL convention recently was held at French Lick Springs, Ind.

—DA—

TOC Names New Committees

The Operations Council, of the ATA, has named new standing committees for the 1955-56 term. A list of committee chairmen follows:

Axle and Vehicle Weighing, John R. King, The Mason Dixon Lines; In-Plant Education, R. J. Erhardt, McLean Trucking Co.; Communications, T. L. McCombs, Roadway Express; Operations Data, C. L. Lunt, Spector Motor Service; Terminal Design, Roy H. Stewart, J. E. Faltin Motor Transport; Poster, G. H. Becker, Murphy Motor Freight Lines; Membership and Program, T. W. O'Neill, Geo. F. Alger Co.

Traffic Education

Wayne S. Franklin, gtm, Brown-Forman Distillers Corp., Louisville, Ky., addresses students completing certificate requirements in courses in traffic offered by the Universtiy of Louisville. The Transportation Club of Louisville is making available a series of scholarships which will be awarded on a merit basis to students in transportation courses in the University's Division of Adult Education

News Briefs

There were 1,152 vessels of 1,000 gross tons and over in the active ocean-going **U. S. Merchant Fleet** as of June 1.

A group of six forwarders, acting independently of any of the established forwarding associations, have formed a **Joint Committee for Foreign Freight Forwarder Legislation.**

The 11th regular meeting of the **Middlewest Shipper-Motor Carrier Conference** was conducted in Denver, Colo., July 14-15.

The **Illinois Central Railroad** has announced piggy-back service between Chicago, Ill., and Memphis, Tenn.

Direct steamship service from Northern European ports to the San **Francisco** foreign trade zone was inaugurated last month.

The first cargo of mail ever carried by an air-freight line took off from Chicago on June 28 aboard a **Slick Airways** C-46, bound for Washington, D. C.

Federal Barge Lines has applied to the ICC for an extension of common carrier operating rights on the Missouri River north of Omaha, Neb., to and including Sioux City, Ia.

Car Loadings

		1955	1954
January	(4 wks.)	2,524,775	2,489,506
February	(4 wks.)	2,575,082	2,461,745
March	(4 wks.)	2,621,087	2,411,886
April	(5 wks.)	3,432,895	3,093,083
May	(4 wks.)	3,062,863	2,696,753
June	(4 wks.)	3,085,277	2,730,294
Total		17,301,979	15,883,267

College-Industry Committee on Material Handling Education

The College-Industry committee on material handling education recently met at Wayne University, Detroit. Those participating were, left to right: Dr. S. A. Larsen, Wayne Univ.; H. M. Palmer, Lewis-Shepard Prod. Co.; H. T. Amrine, Purdue Univ.; James Bright, Harvard Univ.; N. Shikes, Rutgers Univ. and RCA; A. K. Strong, Chemical Construction Corp.; B. W. Saunders, chairman CICMHE, Cornell Univ.; J. G. Bucuss, Acme Steel Prod. Div.; D. H. Bitney, Union Steel Prod. Co.; L. W. Shea, MHI; E. W. McCaul, Jervis B. Webb Co.; J. M. Apple, Michigan State Univ.; I. M. Footlik, Illinois Institute of Technology. Members not shown are G. E. Hagemann, NYU; J. R. Huffman, UCLA; F. C. Winter, Columbia Univ.; O. E. Johnson, Ford Motor Co.; and G. A. Smith, IBM Corp.

Wooden Pallet Production Up; Possible Price Rise Seen by Manufacturers Assn. at Annual Meeting

In the first six months of 1955, the wooden pallet industry operated at production levels considerably above that for the same period of 1954, according to reports given at the 9th Annual Meeting of the National Wooden Pallet Manufacturers Assn. last month in Washington.

Reports reaching NWPMA indicate that the costs of both pallet grades of lumber and pallet types of fastenings are tending upward, with this increased cost of production expected to be reflected in the sale price of wooden pallets in the near future.

William H. Sardo, Jr., secretary-manager of NWPMA, reported that more than 10,000 copies of the Association's revised Minimum Standard Specifications for warehouse pallets, and approximately 8,000 copies of the NWPMA Technical Handbook on Pallets and Palletization have been distributed since their publication during the latter part of 1954.

Members approved a project whereby NWPMA would hold at least two Pallet Conferences on the West Coast in September or October, 1955. The program also included an address by Leo V. Bodine, executive vice president of National Lumber Manufacturers Assn., and a talk by Eric H. Weren, of CIT Corp.

—DA—

As the quickest means of increasing the serviceable freight car supply to meet anticipated traffic demands, member roads of the AAR meeting in Chicago last month unanimously adopted a stepped up program of car repair and up-grading. The immediate goal is to bring the number of cars awaiting repair down to, or below, 5 per cent of the total, which will have the effect of adding about 25,000 cars to supply.

Chamber Names Committee

Forty-four business and civic leaders have been appointed to the Transportation and Communication Committee of the Chamber of Commerce of the United States. They will direct the activities of the national group's Transportation and Communication Dept., and recommend policy in these fields. J. H. Carmichael, president of Capital Airlines, is committee chairman.

—DA—

Legislative Line-Up

Following is a brief summary of legislative items pending in Washington. The status reported is as of July 10.

FOREIGN TRADE—H.R. 1, the Administration reciprocal trade bill, became Public Law 86, 84th Congress, when signed by the President on June 21.

HIGHWAY CONSTRUCTION — House Public Works committee refused to accept the Senate-passed Gore bill, S. 1048. The group told a special subcommittee to work out a measure with a financing plan acceptable to both Republicans and Democrats.

HIGHWAY LAWS—Disposition of H.R. 234, 235, and 2127 was delayed while the House Public Works committee concerned itself with the highway construction problem.

PHANTOM FREIGHT — Hearings were held by a House Commerce subcommittee on H.R. 528 in early July. Nothing was scheduled on the companion measure, H.R. 765.

POSTAL RATES — Still pending before the House Post Office committee was the Administration postal rate increase bill, H.R. 2988.

SHIP MORTGAGES—House Merchant Marine committee has set no date for hearings on the Boggs bill, H.R. 5109.

TERMINAL MARKETS — Cooley bill, H.R. 4054, was considered in closed session by the House Agriculture committee early in July. Hearings were held previously.

TRANSPORT POLICY — Action was postponed by both House and Senate Commerce committees on bills to revise the Interstate Commerce Act. These are S. 1920 and H.R. 6141 and 6142.

TRIP LEASING—S. 898, to alter ICC authority over regulation of truck leasing by carriers, has been heard by a Senate Commerce subcommittee. Further work by the group is scheduled.

—DA—

Senator Warren G. Magnuson in an address before the International Brotherhood of Teamsters, Western Conference, in Los Angeles last month, served notice that there would be no hearings this session on the President's Cabinet Committee Report on Transport Policy, Transportation Bill S.1920.

(Please Turn Page)

Chuting the News . . .

(Continued from Preceding Page)

Resolution For Repeal of Transportation Taxes Adopted by Associated Traffic Clubs of America

At a recent meeting of the board of directors of The Associated Traffic Clubs of America, the following resolution was unanimously adopted. It has since been ratified by all member units.

The Resolution

WHEREAS, The ATC is a national organization with carrier and shipper membership . . .

WHEREAS, the Stated Aims and Purposes of ATC include effecting sound transportation policies, through the study and discussion of all questions relating to all phases of transportation; and to preserve free enterprise in ownership and operation of all modes of transportation, and

WHEREAS it is the expressed conviction of the membership that the federal tax on the transportation of passengers which was enacted under wartime emergency conditions not for revenue purposes but to discourage the use of passenger transportation facilities for civilian travel and to lessen the burden on a then overburdened group of transportation agencies, has long since ceased to have such justification and discourages rather than stimulates passenger transportation; and

WHEREAS it is the further expressed conviction of the membership collectively that the federal tax on the transportation of property is objectionable because:

a. It is a tax which is compounded with its reassessment on repeated movements of the same property or the products of such property. In each of such movements, the transportation tax is an element of cost which ultimately is passed on to the consuming public in an amount which is greater than that of the tax itself.

b. The tax on transportation of property is a necessity, not a luxury.

c. Since the amount of the tax is measured by the amount of the transportation charge rather than by the value or the character of the commodity transported, the spread in the amount of tax assessment varies greatly with the length of haul and increases as the length of haul increases. This spread places an additional burden upon the long-haul shipper, decreasing his ability to compete in common markets, perhaps being the determining factor in his ability to so compete at all. The spread in the transportation tax, as well as in the transportation charge itself, can be a determining element in the relocation of business enterprises.

d. Since the tax applies only on charges paid to for-hire transportation companies and not upon the costs of private transportation, it is an element in determining the method by which transportation services are performed, this to the competitive disadvantage of those transportation agencies in the for-hire field, whether air, water, highway or rail.

e. The measure of the tax on the transportation of property is an element in determining the rate levels of for-hire transportation systems. In recent years, such systems have required substantial general increases in their levels of charges, with resulting question as to the ability of some traffics to pay those increased levels. The transportation tax, in effect, has increased the level of for-hire carrier charges by its own amount.

Entire Repeal

RESOLVED, that The ATC does hereby advocate the entire repeal of the federal transportation tax of three per cent on the transportation of property, four cents per net ton on the transportation of coal and 10 per cent of the fares for carriage of persons.

—DA—

The essentiality and United States Flag service requirements of eight more trade routes and services have been approved by the Maritime Administration. These include Trade Routes Nos. 5, 7, 9, 10, 25, and 27, and the Round-the-World Service Westbound.

—DA—

Three of the nation's major manufacturers of tires—B. F. Goodrich Co., Goodyear Tire & Rubber Co. and United States Rubber Co. — have joined the ATA Foundation and will cooperate in the trucking industry organizations program of education.

MEN
IN THE NEWS

Traffic

Warner K. Loeb — appointed gen'l traffic mgr., Park & Tilford Distillers Corp., N. Y.

Transportation—Highway

Oscar Horvitz —named comptroller, Spector Motor Service, Inc., Chicago, Ill.

Wallace N. Barker—elected executive vice president, Fruehauf Trailer Co., Detroit, Mich.

Roy H. Stewart recently resigned as secretary, The Operations Council, ATA, to accept a position as operations manager, J. E. Faltin Motor Transportation, Inc., Manchester, N. H. Stewart will continue as a member of the board of directors, and terminal design committee, TOC.

Alfred S. Osbourne — elected president, Southern Transfer Co., Memphis, Tenn.

Alfred E. Johnson—succeeds **Hal H. Hale** as executive secretary of the American Association of State Highway Officials.

P. E. Tobin — new gen'l sales mgr., Truck Div., The White Motor Co., Cleveland, O.

William A. Tebbel—elected treasurer, Fruehauf Trailer Co., Detroit, Mich.

Edmund C. Pusey—appointed Mid-Atlantic States regional representative, National Highway Users Conference, Washington, D. C.

Washington DA

By Ray M. Stroupe, *Chilton Washington News Bureau*

TRUCK TONNAGE GROWS—Climb in intercity truck tonnage was maintained in the first quarter this year as trucks moved 12.2 per cent more freight than in the opening quarter of 1954. In the nine regions reported to the ATA gains were general. By areas, the increase was highest in the upper Midwest, where a 16.2 per cent increase was registered.

SAFETY MARK SET—Trains were involved last year in 3,336 grade crossing accidents, the smallest number for any year on record at the ICC. Fewer persons were killed or injured in these accidents than in any previous year for which the ICC has data. Train-miles traveled by major railroads dropped 8.1 per cent below those for 1953, but the number of crossing mishaps also decreased by 2 per cent.

PLAN TRAILER SHIPS—Maritime Administration is asked by officials of the Pan-Atlantic Steamship Co., of Mobile, for authority to build seven trailer vessels of the "roll-on, roll-off" type. The firm proposes to turn in seven C-2 vessels to obtain credit for new construction. Aggregate cost of the trailerships, which would serve ports from Boston to Galveston, is to be $63 million. Each could handle 288 truck-trailers.

STATE AID READY—Public service commissioners of Wyoming, Indiana, and Tennessee will represent state regulatory agencies at one of the best-advertised of forthcoming ICC hearings. These sessions, booked to begin on Sept. 26, will cover railroads' petition for permanent status of temporary freight rate hikes in effect since 1952. The state officials, who will consult with the commission, will be present by ICC invitation.

TRIM CAR SHORTAGE—Evidences of a new boom in freight car orders fail to shake a prediction from the AAR that a car deficit will continue for some time. AAR Vice President Robert Henry foresees a probable shortage through the active loading season this year. However, AAR statistics indicate carriers are beginning to counteract the shortage with new orders for perhaps 55,000 units.

STOCK ISSUE OKAYED—Special issue of 640,000 shares of New York Central R. R. stock is authorized by the ICC. The railroad will reserve half the shares of a purchase plan for officers and key employees. Remaining 320,000 shares are to be used in an incentive bonus plan providing awards of up to $50,000 to employees for extraordinary services to the company.

TO ADVISE MILITARY—Expert advice is being prepared for the Defense Dept. on its proposed performance standards for industrial power trucks of military type. Engineers from truck producing firms are analyzing specifications covering such equipment as fork-lift and straddle trucks. Their recommendations will be submitted through the Business and Defense Services Administration to the military.

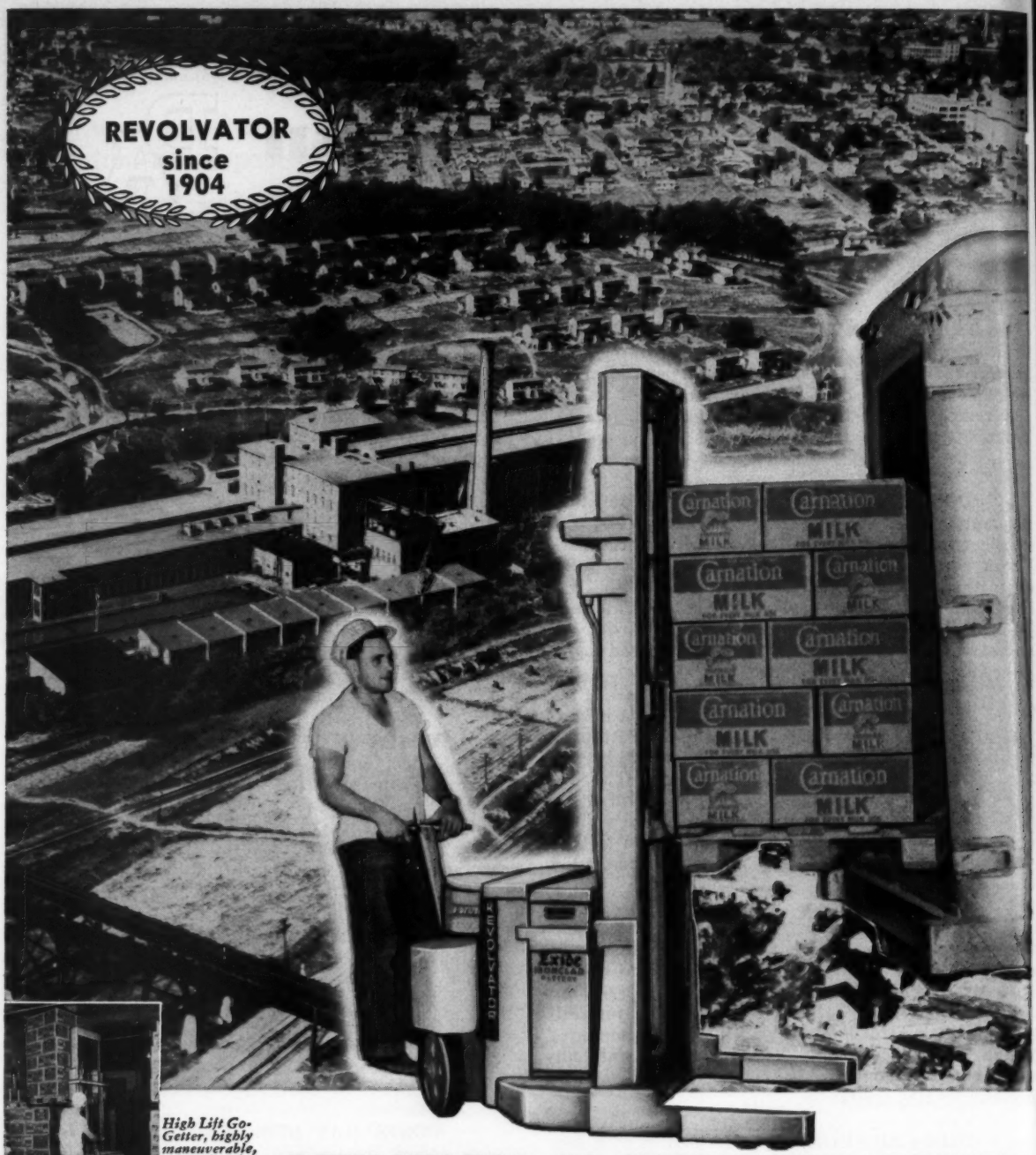
GETS MERGER APPEAL—Hearings are to be held by the ICC late in August on a proposed merger of the Nashville, Chattanooga & St. Louis Ry. into the Louisville & Nashville R. R. The L. & N. now owns 75 per cent of the outstanding capital stock of the N. C. & St. L. Spokesmen for the roads say if the ICC allows the consolidation operating costs can be trimmed by $2 million a year in five years.

VOTES VESSEL MONEY—Approved by Congress is $86.4 million for private work on merchant-type ships in this fiscal year. Part of the money is to be used for a fast prototype tanker, two passenger-cargo ships, and replacement of five cargo ships in service. A substantial amount of the $82.6 million voted last year for shipbuilding also is available for spending.

NLRB STAND ASSAILED—Reversal of the National Labor Relations Board approval of "hot-cargo" contracts is urged by the U. S. Chamber of Commerce. These agreements, forced on the trucking industry by union pressure, permit workers of one firm to refuse to handle products of another with which a union has a dispute. Such contracts, the Chamber charges, violate the Taft-Hartley Act.

COSTS MAY RISE—Shippers using freight cars cooled by ice and salt will find their costs boosted by about $5 million annually if ICC agrees with the recommendation of one of its examiners. The proposed refrigeration service fee would exceed present rates by 12 per cent, instead of the 30 per cent asked by the railroads. Unaffected would be rates on cars with built-in mechanical cooling units.

INCOME STAYS HIGH—Like April, May proved an excellent month for improvement in railroad net income. Net for the month, after interest and rentals, amounted to $86 million, or more than double that of May, 1954. These receipts lifted rail net income to $329 million for the January-May period. In the comparable months last year the net was $172 million.



High Lift Go-Getter, highly maneuverable, a favorite of food producers, wherever narrow aisles and high stacking is required.

The same High Lift Go-Getter engaged in transporting goods from the warehousing operation to the shipping point — a real brute for work.

REVOLVATOR GO-GETTER LIFT TRUCKS

You Benefit By Over 50 Years of Diversified Experience

Thruout Industry Revolvator Go-Getter Lift Trucks have been used to solve a great range of materials handling problems. For manufacturers of heavy machinery—where area temperatures are high and loads are maximum; for packers of frozen foods with temperatures ranging from seasonally atmospheric to far below zero, Go-Getter Lift Trucks have proved their worth. No matter how different you may feel your requirements are, there is a standardized Revolvator Go-Getter ready to perform your most specialized requirements.

The quiet, smooth, powerful operation; the easy maneuverability; the freedom from heavy maintenance; the overall simplicity of construction of these Revolvator Go-Getters have made the name Revolvator synonymous with peak efficiency in materials handling.

Today write for full information.

REVOLVATOR CO.
8796 TONNELE AVE., NORTH BERGEN, N. J.

Circle No. 11 on Card, Facing Page 49, for more information

DA INDUSTRY SURVEY

AUGUST, 1955
Vol. 54, No. 8

Rough Handling No. 1 Cause of Cargo Damage

All-industry average of all causes shows 29.8% experience this trouble; improper loading is second major cause, 21.1% say

ROUGH Handling is the principal cause of cargo damage, say the majority of the nation's transportation, warehouse, and traffic executives in answer to a recent DA Survey. Approximately 30 per cent of all who participated in this survey agree, although individual industry experience shows wide variations—from little or no occurrence to a frequency of 66.7 per cent of other causes.

Improper Loading 21%

The other causes of cargo damage, in order of frequency occurrence, are: Improper Loading, 21 per cent; Humping, 19.3 per cent; Improper Packing, 17.5 per cent; and Bad-Order Cars, 12.3 per cent. As in the case or rough handling, these figures represent national averages. Averages for individual industries will be found in Table 1.

Originally, this survey was intended to report conditions experienced by industrial traffic managers. However, so many returns were received from warehousemen, motor carriers and others, that it was decided to include these and other major groups to represent the consensus of all who handled freight. Most industry designations in the Table seem to be self explanatory except, perhaps, "Shippers"; which includes pool car distributors and freight consolidators.

It also should be explained that the headings in the Table were taken from actual wording supplied by the respondents. The most-often used word, or words, to describe a condition were selected.

For example, the words "Rough Handling," column, appeared more often than any; yet, included in the column were such synonymous expressions as, "poor and careless handling, carrier bad handling, dropping, and so on." Included in the Improper Loading column are such designations as, "poor bracing, improper leveling-off of stop cars, shifting of load, etc."

It was reported by 76.4 per cent of the respondents that these causes are being gradually overcome; although 11.8 per cent still are having a bad time of it, while an equal number, 11.8 per cent either have solved the problem or eliminated the causes.

A few specific examples of how some of industrial traffic managers are solving their damage problems are indicated by the following comments. Hugh Crawford, TM, Johnson & Johnson, Chicago, reports that the three principal causes of damage he has been experiencing were rough handling, water damage, and crushing. He has partly solved these damage problems by "frequent discussion with carriers as to their responsibility and by a review of our case sizes for improvement."

W. F. Huegel, TM, The Larsen Co., Green Bay, Wis., reports that

(*Please Turn to Page* 62)

TABLE 1—PRINCIPAL CAUSES OF CARGO DAMAGE

INDUSTRY	ROUGH HANDLING (Per Cent)	IMPROPER PACKING (Per Cent)	HUMPING (Per Cent)	IMPROPER LOADING (Per Cent)	BAD ORDER CARS (Per Cent)
Food Products	....	....	40.0	60.0	....
Metal Products	43.0	21.4	21.4	7.1	7.1
Paper Products	....	....	33.3	....	66.7
Pharmaceuticals	66.7	....	....	....	33.3
Other Manufacturing Industries	12.5	25.0	25.0	37.5	....
Shippers	25.0	....	25.0	....	50.0
Department Stores	66.7	33.3	....	....	....
Motor Carriers	50.0	37.5	....	12.5	....
Warehouses	11.1	11.1	22.2	44.5	11.1
All-Industry Average	29.8	17.5	19.3	21.1	12.3
Minus Warehouses and Motor Carriers	30.0	15.0	22.5	17.5	15.0
Manufacturing Industries Only (Minus Warehouses, Motor Carriers, Department Stores and Shippers)	27.3	15.2	24.2	21.2	12.1

Thin-Skinned Problem

World's Most Fragile Fruit Gets Pampered Handling

By Warren E. Crane
DA Pacific Northwest Correspondent

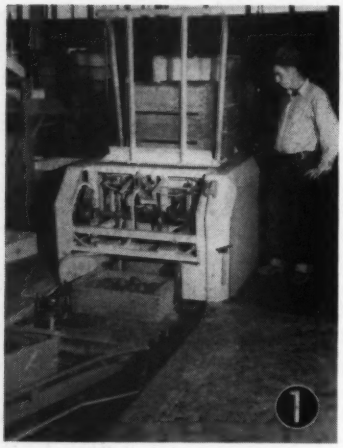


Fig. 1: Box unstacker feeds boxes into line in synchronized tempo

Fig. 2: Box inverter allows fruit to be dumped without costly bruising

Fig. 3: Avocados are fed automatically into dust removing machine

BECAUSE of its highly delicate nature, the thin-skinned avocado requires special care in getting it from tree to table. At every step along the way — picking, processing, packing, shipping and warehousing — the avocado is subjected to kid glove treatment on an assembly line basis.

To assure the safe journey of their fruit from orchard to consumer — with a minimum of loss and a maximum of profit—a group of California avocado growers have joined in a cooperative marketing organization known as Calavo Growers of California.

With processing and packing plants in Escondido and Placentia, Calif., the 31-year-old cooperative last year marketed more than two million boxes of avocados. Predictions are for an even more successful 1955.

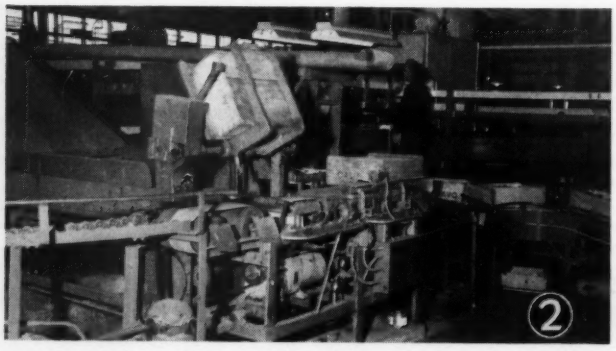
Same-Day Delivery

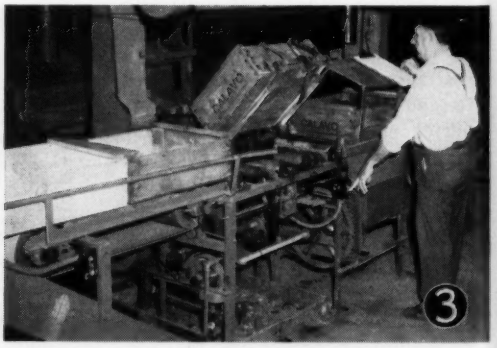
The avocados are rushed from the groves by truck for same-day or over-night delivery to the packing house. Each member's lot is identified as to source, variety and quantity. Field boxes are supplied to members for use in delivering their fruit to the packing houses or to a specified pick-up station in the district, from which commercial carriers then haul the fruit to the packing house.

Costs of transportation from the point of receipt are absorbed by Calavo as a pool expense. A temporary receipt is issued to a member at the time of delivery to a point other than the packing house and a permanent receipt is mailed when the shipment is received at the packing house. Receipts are issued immediately in the event of direct member delivery to the packing house.

Grower "tally sheets" are completed after grading runs are finished. Sheets show quality and size segregations. Returns to growers are based upon averages of market-sales proceeds by grade and size. Settlements are made by "pool" usually based on calendar months.

Members are furnished field boxes with picking instructions as to quantity and time—by variety.





The delicate avocado is rapidly gaining wider commercial acceptance due to special handling techniques in the 12 steps needed to bring it from orchard to the consumer in good condition

Over 100 avocado varieties are handled by Calavo each season. Picking is governed by crop maturity and marketing conditions.

12-Step Process

The first step in a 12-step tour through the Escondido plant involves inspection of the laboratory, where the avocados are tested for oil content, ripeness, and suitability for use.

The second step in the plant tour is the box unstacker, which feeds boxes to the processing line. The emptying of fruit from boxes is synchronized with the grading and packing operations. Growers' lots are recorded at this point. The third step is the box inverter. It allows the fruit to be removed from the boxes without falling or bruising. Empty boxes are conveyed to the rear of the building where growers and truckers may take them as needed.

Next, the avocados are taken to a dry-cleaning machine for the removal of surface dust. The fruit cannot be washed by immersion as the skin is too tender.

The fifth step is the waxer. This step is taken because an avocado must breathe. This brings about a handling difficulty. After several years of research, a system of waxing avocados was devised. Wax applied by a foam method is spread over the fruit by means of soft brushes. The fruit that is waxed in this manner reaches the consumer in better condition, and has a longer storage life.

The sixth step in the operation is the counter, an electronic device that receives the count from all sizers and

(*Please Turn to Page* 61)

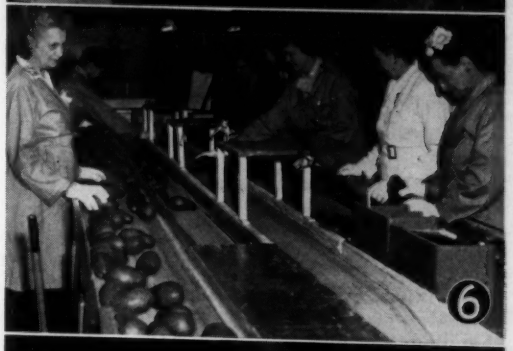


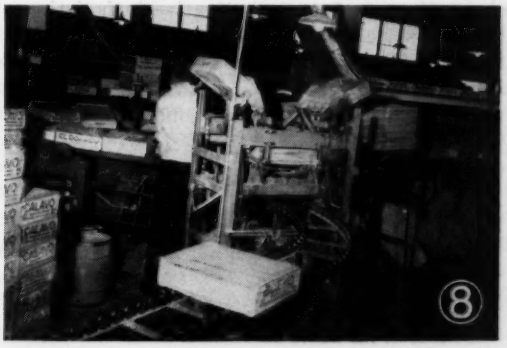
Fig. 4: The electronic counter receives the count from all sizers and records the numbers by weight

Fig. 5: Each avocado is placed in a rubber covered cup before passing through the stamping machine

Fig. 6: Under the sharp eye of skilled graders, the avocados are inspected and classified as to quality

Fig. 7: From the graders, the flats pass along the conveyor line for final inspection and box lidding

Fig. 8: From this lidding machine, the boxes are conveyed for stacking, then to storage or shipping



Interstate Shipment Thefts—I

Stolen Property Recoveries Hit A

FBI recoveries of property stolen from interstate shipments went over $1 million in 19

By A. W. Greene
Editor, DISTRIBUTION AGE

FEDERAL Bureau of Investigation records show that its recoveries of stolen property from interstate shipments exceeded $1 million in fiscal 1954—an all-time high. Recoveries for 1955 also passed $1 million and may exceed 1954.

While the Bureau is to be commended, there is an implication that shippers, carriers and warehousemen were lax somewhere along the line. The FBI has been alert to this situation, and has attempted to check the trend at the points of origin.

FBI Conferences

A series of FBI Law Enforcement Conferences on Thefts from Interstate Shipments was held during 1953 as one step toward more effective action against this type violation. More than 8,600 persons, representing approximately 4,100 agencies—including municipal, county and state law enforcement agencies, railroad police, motor freight companies, airlines, steamship and insurance companies, together with bus lines, warehouse officials, and representatives of various prosecutive agencies—met in a joint effort to combat the crime of cargo thefts.

Following these conferences, the general manager of a local trucking company remarked that the conferences had given trucking company owners a chance to inquire regarding the whys and wherefores of various police procedures and, in addition, to get a closer picture of the investigative jurisdiction of the FBI and state and local police. Another participant in these conferences pointed out that the mutual discussions had impressed upon both law enforcement organizations and commercial concerns that each has problems of its own which can be worked out by mutual cooperation, courtesy, and consideration for the other's difficulties.

The representatives of underwriters and insurance companies present at several of the conferences indicated that they now had a better understanding of the problems involving theft from interstate shipment matters, and that heretofore they had viewed such matters only from the insurer's point of view.

Despite the fact that recoveries of stolen goods in thefts from interstate shipments have reached an all-time high, the Bureau has not reduced any of its activities. In fact, they have been intensified. But last year, as in the past several years, more and more goods are moving in interstate commerce. This means that the exposure factor is greater.

FBI Statistics

A summary of statistics for the 1954 fiscal year regarding theft from interstate shipment not only indicates the prevalence of this type of crime; it also reflects the success of the FBI in conducting investigations of such crimes.

There were, in the 1954 fiscal year, 646 convictions for theft from interstate shipment as compared with 606 in 1953. The total of sentences (actual, suspended, and probationary) meted out under this statute for the 1954 fiscal year was 1,526 years, 2 months and 14 days. During the comparable period of 1953, the total was 1,474 years and 26 days.

There were 133 fugitives located in connection with violations of this statute in the fiscal year 1954, as compared with 122 in the prior year. Fines imposed in 1954 totaled $46,986. Fines imposed in the prior fiscal year totaled $43,215.

For the first time, recoveries of stolen property in connection with the enforcement of the theft from interstate shipment statutes went over the million-dollar mark. Such recoveries totaled $927,580 in the fiscal year 1953. In the comparable 1954 period, they totaled $1,297,310.

Statistics available for the first 11 months of fiscal 1955 reflect a continuation of the upswing of convictions in theft from interstate shipment cases and indicate that 1955 will surpass 1954. There have been, for example, a total of 689 convictions recorded dur-

Recoveries, Locations & Convictions

Year	Recovered (Dollar Value)	Fugitives Located	Convictions
1953	927,580	122	606
1954	1,297,310	133	646
1955*	1,118,520	136	689

* Figures for 1955 include first 11 months of federal fiscal year only.

All-Time High

in 1954; 1955 running a close second

ing the first 11 months of 1955 (July, 1954-May, 1955), as compared with 602 for the same period in 1954.

During the 11-month period, 136 fugitives were located, as compared with 128 for the same period of 1954. The value of property recovered in FBI cases during this period indicates this will be another "million dollar year."

Trends in Thefts

Hijackings and other thefts from interstate shipment take on no set pattern. While thieves occasionally hijack loads of illogical and sometimes unheard of commodities, for the most part they stick to thefts of readily salable items. High on the list of frequently hijacked commodities are cigarettes, whiskey, textiles, etc.

Any shortage of a particular consumer-type commodity also brings about an increase in thefts of that item. For example, during the potato shortage in the Spring of 1952, two teenagers broke into a freight car and stole nine 50-lb. sacks of potatoes.

Not all thefts from interstate shipment cases can be considered major thefts. Frequently transportation companies suffer losses as the result of systematic pilferings by a group of thieves, occasionally within the organization itself. Where so-called petty thievery is engaged in extensively, the losses may and often do far exceed the loss sustained in one major theft.

The experiences of railroad police, terminal managers, and law enforcement officers alike indicate that the losses which frequently occasion the most concern are those which might be termed "thefts of opportunity." These losses occur when an employee or passer-by observes an opportunity to pilfer safely. Pilferages are mostly of limited value but, in the aggregate, they represent a considerable part of the total losses.

FBI Jurisdiction

Not all thefts of commodities in transit or in a warehouse come under the jurisdiction of the Federal Bureau of Investigation. A manufacturer of radio and television equipment, for example, noticed a gradual loss of radio tubes from his warehouse. These tubes had been shipped from an out of state source of supply but had been properly received and were no longer in the channels of interstate commerce.

This is a matter for local police and not the Bureau. If the tubes were consigned for shipment to any source outside the state and were still in transit, it would be a matter for the Bureau's investigation.

The problem of policing and apprehending persons suspected of theft from interstate shipment is not easy. There are many angles and procedures. This entire aspect will be covered in another installment in the next issue.•

FBI Jurisdiction in Thefts From Interstate Shipment

Violations of the Theft from Interstate Shipment Statutes, which fall within the jurisdiction of the FBI, are, in brief, as follows:

1. The theft or embezzlement of any goods or chattels which are moving as interstate or foreign shipments as specified in the statute.

2. The buying, receiving, or processing of such goods, knowing they were stolen or embezzled.

3. Unlawfully breaking the seal or lock of, or entering with intent to commit larceny, any railroad car, motor truck, air-craft, vessel or other vehicle which contains interstate or foreign shipments.

4. The embezzlement of monies by employees or officers of the firms engaged in interstate commerce as a common carrier may in some instances constitute a violation.

Goods moving in interstate commerce may be illegally obtained in several different ways: (a) armed robbery, more commonly known as hijacking; (b) Larceny from truck or other vehicle, dock, loading platform, depot, terminal, etc., which includes package thefts and sneak thievery; (c) Burglary—breaking and entering of warehouses, terminals, depots, etc., including the breaking and entering of trucks or railroad cars or breaking the seals thereon; (d) Embezzlement—conversion of the load and conversion of the freight charges; and (e) Fraud—obtaining an interstate shipment by use of fictitious name or transportation company, etc.

The maximum penalty provided is a $5,000 fine or imprisonment for ten years, or both. The statutes further stipulate that a judgment of conviction or acquittal on the merits under the laws of any state shall be a bar to any Federal prosecution thereunder for the same act or acts.

Does Private Carriage Pay?

Rising freight rates again give rise to the perennial question which the author does not attempt to answer, but, instead, formulizes a procedure for finding individual solutions

By James J. Walsh
Traffic Manager, The Mennen Co.
Morristown, N. J.

SHOULD our own trucks handle some of the tonnage which we now move by rail or via for-hire motor carriers? Will this help us to reduce costs, improve the efficiency of our deliveries, or make sales programs more effective?

Manufacturing and distributing companies, which traditionally have been only on the shipping and receiving ends of transportation, are giving increased attention to these possibilities. Management is asking pertinent, searching questions like the ones above. They look to their industrial traffic managers to supply factual answers, and—if the answers are affirmative—to set up and supervise a "private carrier" operation of large trucks or tractor-trailers. Many firms have realized worth-while savings through operation of their own vehicles.

High Rates Add Impetus

In 1954, the number of private carrier trucks on our highways was at an all-time high, and it continues to climb. At least some of this growth is due to the continuing upward trend of freight rates. Each successive rate increase has served as a sharp reminder to shipper and consignee that the transportation aspects of business cost must be examined even more closely for latent economies.

In addition to the possibility of cost reductions, expanded private truck operations often can yield other advantages. Individual delivery requirements of customers can be met. Personal attention and service are effectively maintained.

The private truck operator can select equipment specifically suited to the goods he hauls (including the use of pallets, bins or other special types of containers, if they are to his advantage.) He tailors his transport schedules to the convenience of his business. He can enforce the handling standards he desires for perishables, fragile articles and products of time value.

When we consider all these possible advantages, we may be tempted to say, "This sounds good. How quickly can we establish a 'private-carrier' service?"

In most cases careful and detailed preparation is needed before a company can launch this kind of operation with prospects of success. Several other questions have to be answered completely first.

Can we actually realize service advantages, cost reductions, or both, in our particular business? If so, in what route or territory must we operate to gain these? Will state and federal regulations permit us to operate freely? How will our vehicles be procured, controlled and maintained?

Regulatory Aspects

The regulation problem is a relatively simple one for interstate operations. According to the Motor Carrier Act of 1935 (Now Part II, Interstate Commerce Act), any person is a private carrier when he "transports . . . by motor vehicle property of which such person is the owner, lessee or bailee, when such transportation is for the purpose of sale, lease, rent, bailment, or in furtherance of any commercial enterprise."[1]

The manufacturer or distributor who runs his vehicles across state lines as an incidental feature of some other business normally is in this category. He is distinguished from for-hire carriers, common and contract, which generally are in the business of furnishing transportation service to others for profit.

To conduct his interstate transport activities, the private carrier requires no special authority, and has no federal reports to file. (Some states, however, such as New York with its ton-mile tax, may require reports from private truck operators.)

The private carrier must license his vehicles and comply with the

[1] Section 203 (a) (17), Interstate Commerce Act.

TABLE I

Schedule of Company-Operated Tractor-Trailer Brooklyn Plant—Philadelphia Distribution Point—Baltimore Distribution Point—Salem, N. J. Glass Jar Supply Point

OPERATION	TIME	HOURS*	MILES
MONDAY			
Leave Brooklyn Plant**	7:00 am		
(Lunch 11:30 am to 12:00 noon)			
Arrive Baltimore distribution point and begin unloading	2:00 pm	8	193
Complete unloading, go off duty	3:30 pm		
TUESDAY			
Leave Baltimore (empty)	7:00 am		
Arrive Salem and begin loading empty jars	9:45 am		
Complete loading and leave Salem	10:45 am	8¾	217
(Lunch 11:30 am to 12:00 noon)			
Arrive Brooklyn plant and begin unloading	3:30 pm		
Complete unloading, go off duty	4:15 pm		
WEDNESDAY			
Leave Brooklyn Plant**	7:00 am		
Arrive Philadelphia distribution point and begin unloading	10:30 am		
Complete unloading	12:00 noon		
(Lunch 12:00 noon to 12:30 pm)		12	285
Leave Philadelphia (empty)	12:30 pm		
Arrive Salem and begin loading	2:15 pm		
Complete loading and leave Salem	3:15 pm		
Arrive Brooklyn Plant***	7:30 pm		
THURSDAY			
Leave Brooklyn Plant** for Baltimore	7:00 am		
Balance of day's schedule exactly same as on Monday, above.		8	193
FRIDAY			
Leave Baltimore (empty) for Salem	7:00 am		
Balance of day's schedule exactly same as on Tuesday, above.		8¾	217
TOTAL HOURS PER WEEK		45½	
TOTAL MILES PER WEEK			1105

*—Does not include lunch periods.
**—Trailer loaded in advance with pool truckload of instant coffee by shipping department at Brooklyn Plant.
***—Trailer-load of glass bottles unloaded by shipping department at Brooklyn Plant.

TABLE II

Comparison of Present vs. Proposed Transportation Cost on Weekly Basis for Items Which Can Move Regularly via Company Truck

PART A—PRESENT COST

DESCRIPTION OF MOVE	GROSS POUNDS PER WEEK*	TRANSPORTATION METHOD AND RATE	COST PER WEEK
Instant coffee, in jars, from Brooklyn to Baltimore	35,000	Pool truckloads to Baltimore local cartageman, at 57¢ per cwt.	$ 199.50
Instant coffee, in jars, from Brooklyn to Philadelphia	26,000	Pool truckloads to Philadelphia local cartageman, at 42¢ per cwt.	109.20
Empty glass jars from Salem, N. J., to Brooklyn, N. Y.	72,000	Truckloads, at 41¢ per cwt.	295.20
PRESENT COST PER WEEK—TOTAL			603.90

PART B—PROPOSED COST—VIA COMPANY-OPERATED TRUCK

NATURE OF EXPENSE		ESTIMATED COST PER WEEK
Depreciation:		
On $15,000 investment over 4 years (208 weeks)		$ 72.12
Operating expenses:		
Gas, oil, maintenance, tires, at 10¢ per mile		110.50
Wages of driver:		
40 hours at $2.10 per hour	$84.00	
5½ hours at $3.15 per hour	17.33	
Plus 20% for payroll taxes, vacation pay and fringe benefits	20.27	
		121.60
Insurance		18.00
Registration fees and ton-mile taxes		8.50
Toll charges—N. J. Turnpike, Del. Memorial Bridge, Holland Tunnel, etc.		39.45
Overnight expenses away from home city:		
2 nights at $8.00		16.00
PROPOSED COST PER WEEK—TOTAL		388.17
COST REDUCTION PER WEEK		217.73
COST REDUCTION ON ANNUAL BASIS (52 weeks)		$11,321.96

*—Volume shown under Gross Pounds per Week represents 75% of average weekly shipments made during year 1953.

safety rules of the ICC[2] and of the states which he is to traverse. He must zealously preserve his "private" status by performing no transport services for other people. But beyond these requirements, his trucking activities are limited more by economics than by regulation.

Where movements wholly within one state are involved, the prospective vehicle operator should make special inquiry of state regulatory authorities, to learn how private carriage is defined and the extent to which it is supervised or limited in his particular state.

To answer the question, "Is truck operation worth while for us?" each business organization should make individual analysis to suit its own needs. It is up to the traffic manager to:

1. Determine what volume must be hauled, or what volume is available to be hauled, by company truck or trucks.

2. Compare the service now being obtained with the anticipated standard of service with company trucks.

3. Compare present cost of transportation purchased with the expected cost of the same movements via company truck.

The first step is finding freight volume, from and to one base point—a plant or major warehouse location. At the outset, we consider for movement by private carrier any merchandise requiring special service or handling which is not otherwise obtainable. Our vehicle schedules or routes then may be built on this foundation.

It rarely happens, however, that priority or "must" freight completely fills vehicle capacity in both directions. Hence, we should not overlook other merchandise used in the business. This may include any raw materials, finished goods or supplies which move in appreciable quantities to or from the base point, and which are suited to transport by truck. The search extends not only to things owned, but also to:

1. Merchandise being purchased, which may be transported inbound. Even when inbound materials are purchased FOB destination, and freight is allowed by the seller, the buyer's private carrier status normally is undisturbed.[3]

2. Merchandise being sold, which

(*Please Turn to Page* 58)

[2] Interstate Commerce Commission, Motor Carrier Safety Regulations, Revision of 1952; U.S. Government Printing Office, Washington, D. C., 1952.

[3] Burlington Mills Corp., Transportation for Compensation, 53 M.C.C. 327, 334. Findings of I.C.C. affirmed by Supreme Court of U.S. in Brooks Transportation Co. et al v. U.S., 340 U.S. 925.

Batch Billing Bonanza

By James W. Rowe
Manager
Accounting Machine Dept.
Colonial Stores, Inc.
Columbia, S. C.

Installation of an electronic billing system in this grocery chain warehouse has effected substantial manhour savings, lowered the cost of operation, reduced possibility of errors, speeded the entire order processing schedule

CHAIN grocery firms, with their complex, high volume, and fast-in-fast-out warehousing operations, are becoming increasingly interested in what is variously referred to as batch billing, line billing, or electronic billing.

Eight Advantages

In our organization, Colonial Stores, Inc., in Columbia, S. C., we replaced the conventional unit control tub file plan with a new electronic system. After studying the new system in operation for an appreciable length of time, we feel that it has provided the following distinct advantages:

1. Batch billing operations have resulted in a savings of ten employees over those required to handle the tub file operations, permitting the transfer of these employees to other departments.

2. Since the quantity ordered does not increase the work load, seasonal peaks are handled more in daily routine.

3. Card punching is substituted for card pulling, so girls do not have to be on their feet all day.

4. Price changes require the destroying and creation of only one card per commodity, eliminating previous waste.

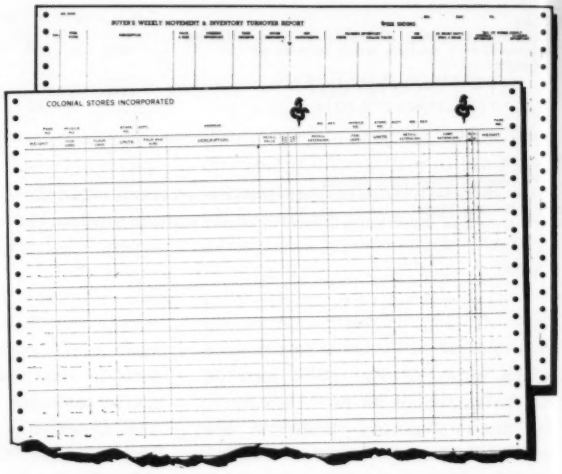
5. Release of valuable space previously occupied by the tub files was effected.

6. More information is available as a by-product of the billing and inventory control, and on accelerated deadlines.

7. A net lower cost of operation has resulted.

8. Accuracy in billing and inventory operations has been improved.

The system is called batch billing because a batch of store orders are processed together rather than one at a time. Others call it line billing because there is but one card for each line of the bill, rather than a card for each shipping unit. Still others call it electronic billing because the operation is best performed with an electronic calculator.



Order form and buyer's form are electronically produced

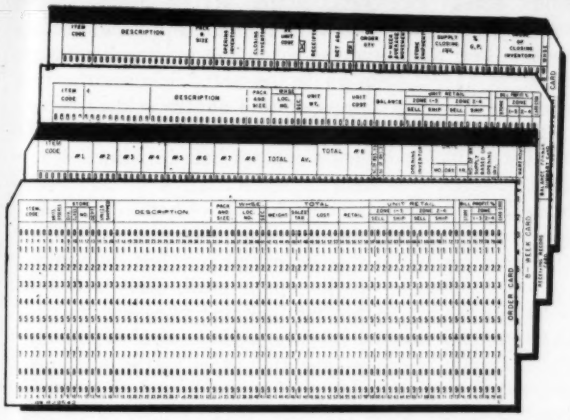
Changes in our operation—from counter service to supermarket—inevitably called for revised methods in control and other accounting procedures. The manual procedures were unwieldy and expensive under the pressure of accelerated growth, and systems were explored to alleviate this situation. It was decided by management that punch card equipment was the best answer.

For a number of years, we used the tub file system with good results. Each item was assigned a code number. The first two digits denoted the classification of the merchandise and the last three digits the com-

a in Grocery Warehousing

Above, left: Employees use IBM card punch machines to punch order data into cards for the order processing

Above, right: Invoice listings are prepared from order punched cards for warehouse selection and accounting use



The entire operation is based on coded punched cards

modity within the classification. Each punched card represented a shipping unit. As notices of merchandise receipts were forwarded to the accounting machine department from the warehouse, a card for each shipping unit received was created by a reproducing machine.

Stores would send in their requisitions for merchandise they desired from the warehouse by listing only the code number and the number of units of the commodity required. Card pullers would go around the inventory or tub file and pull one card for each unit requisitioned. If 10 units were requisitioned, 10 cards of that particular code would be pulled. These cards then would go to the accounting machine for listing, creating a store invoice, as well as one copy for warehouse selection media, and one for accounting purposes.

While this system is possibly the best system to use under certain circumstances, we were receptive to the development of the electronic "no tub file" system because we could adapt it to our circumstances.

The basic consideration in the conversion was the combined rental and personnel cost of the electronic system versus the tub file system. Volume requirements were applied to the new equipment, of course.

Processing Receipts

We maintain a master inventory card for each item stocked in each warehouse. Each IBM card contains the following information prepunched into the cards: Code number, description, pack and size, warehouse location, sales tax code, unit weight, unit cost, inventory balance, unit retails (selling price and case extension) for two retail zones, and billing profit per cent for both retail zones.

Daily, as receiving reports come from the warehouse, one card is punched for each item on a receiving record. These receipt cards then are processed against the proper warehouse inventory master deck, selecting the matched items. After collating in a new

(*Please Turn Page*)

All order-punched cards for a given day are sorted together on item code (left) and collated against master file (right)

During the batch processing of orders, IBM machine operators prepare order-punched cards for calculator process

Batch Billing Bonanza...

(Continued from Preceding Page)

balance inventory card, these cards are processed through the IBM electronic calculator, computing and punching into the new inventory card the new average cost, new inventory balance, and new per cent of gross billing profit.

All other basic information is gang punched from the old inventory card through to the new inventory balance card. The new inventory balance cards, after being control punched, are collated back into the master inventory file.

Store Requisitions

Stores' requisitions are received daily by schedule. Each store orders on a pre-printed form, store managers filling in only the units ordered beside the pre-printed code number. A store address card containing store number and department (grocery, produce, market) and the retail zone each particular store is billed against is pulled for each order and attached to the order.

Each order is punched into a card, punching only item code and units ordered. The store's address card is placed in front of the punched cards for each store and the store number, department, and zone gang punched into all of the order cards for that store by use of the reproducing punch. After all orders have been received, punched, and ganged, these orders are ready to be processed for billing and later selection by the warehouse and shipment to the store.

Another store's address card is pulled for all stores receiving orders for that day and assigned an invoice number which is punched into the card.

All orders for a given day are sorted together on item code and collated against the proper warehouse inventory master file. During this operation, we select off any inventory card for which we have no order cards for that day. After a new balance card has been collated behind each code group, all cards then are ready for processing through the electronic calculator.

Each master inventory card contains control punches which control the setting up of information in the calculator's storage units for use in extending the order cards.

The calculator tests to see if the inventory is sufficient to ship what is ordered. If so, the following is calculated and punched into each order card: Units shipped, weight extension, cost extension, retail extension, store billing profit. The store billing profit then is compared to the proper zone billing profit ganged from the master inventory card. If the calculation is computed incorrectly, the machine will stop. Stops of this nature seldom occur.

The order being filled or partially filled, the calculating punch punches a control hole into each order card. Should this item be out of stock in the warehouse, the calculator tests for this on the first program and, in that event, suppresses calculation on all order cards for this code and punches only zeros in units shipped, weight, cost, retail, and profit. It does not punch the control hole for filled orders.

From the master inventory card, the calculating punch gang punches into the order cards and new inventory card the description, pack and size, warehouse location, sales tax code, retail selling price and extensions, and per cent of gross billing profit.

100 Cards a Minute

The new inventory card, which is blank except for control punches at the time it starts into the calculator, comes out with the new inventory balance, weight, cost, in addition to that information gang punched as outlined. Cards are processed through the calculator at the rate of 100 cards a minute.

As the cards come out of the calculator, by sorting on one column we separate our new and old inventory cards, our filled order cards, and those cards for items ordered that were out of stock. The out of stock cards are used to supply the buying and sales departments with a listing of items cut from stores' requisitions, and after being sorted to store number are listed to supply each store with a listing of merchandise cut from his requisition.

At this point, the new and old inventory cards are

(*Please Turn to Page* 56)

French Railway Rates Use Variety of Bases

Determined by the cost of performing services and competition. They favor train-load lots, efficient utilization, patronage, annual volume, contract rates, low-cost routing, and greater cost considerations

FRENCH railways operate small carrying capacity freight cars, small locomotives and freight trains consisting of fewer freight cars per train than railroads in the United States. For these reasons, the railways of France probably do not have the comparative unit cost advantages as compared with motor trucks in the handling of large unit commodities enjoyed by railroads in the United States.

French railways, however, have been much more aggressive in making freight rates to meet competition with other forms of transportation. They have been encouraged and assisted in their competitive position by the policy of the French government in favoring the government-owned railways in their competition with privately owned and operated highway transportation enterprises, and by the elimination, through government ownership, of inter-railway competition.

French railway rates on many commodities now are published as maximum and minimum rates. The actual charges assessed for movements of freight by railway are made by unpublished tariff or rate agreements between the railways and shippers or consignees, based upon local competitive conditions and cost of performing the services.

These special competitive freight rates are made upon a variety of bases and are determined by the cost of performing the particular services and by the nature and extent of competition.

Special Rates

TRAIN-LOAD LOTS—Special rates are made upon solid train-load lots of freight loaded in freight cars owned and supported by the shippers or consignees. These rates do not include any terminal switching services at origin or destination or any intermediate yarding or classification of the cars.

Trainload discounts are as much as 56 per cent below standard rates.

EFFICIENT UTILIZATION—Special rates are made by contracts contingent upon the utilization of the weight-carrying and cubic capacity of the freight cars. These rates improve railway earnings by increasing the ratio between net weight of the contents of the cars and the gross weight-lading plus tare rates. Special discounts below the standard freight rates for heavy carloading are said to be approximately 50 per cent.

PATRONAGE—Discounts of varying amounts below the standard rates are granted to shippers or consignees who agree to ship, over a stated period of time, all freight of kinds which the railways can transport or all of certain types of freight exclusively via railway service.

ANNUAL VOLUME—Another type of special rate is granted to shippers or consignees who ship a certain volume of traffic in the course of a year.

CONTRACT RATES — On certain types of traffic, particularly on commodities which are distributed nationally in France, special zone rates are charged—an average of the normal rates applicable to different destinations.

LOW-COST ROUTING — Different rates are sometimes made on the same commodities moving the same distance but over routes via which operating costs of the railways are different. The rates charged for movement via the higher-cost routes are greater and near the maximum published rates while the rates applicable via the lower-cost routes are lower and near the minimum published rate.

Cost Considerations

The new practices in French railway freight rates indicate the trend away from rates based upon the value of the shipments and toward greater consideration of the cost of performing the service to meet the competition.

In a recent book by M. Rene Bourgeois, associated chief, traffic department, of the French National Railways, the author emphasizes the importance of using each form the transportation for traffic in which it has the greatest comparative advantage in cost and service. This means of achieving the coordination of transportation is best achieved, M. Bourgeois contends, by permitting each type of carrier to make rates which are based upon their costs.

The experience of the nationalized French railways in freight rate making upon a competitive basis, is of particular interest in the United States; where privately owned and operated railroads, water carriers, motor carriers and pipe lines are re-examining freight rate structures and practices to find rate practices which will enable them better to convert gross revenue into net earnings; and where shippers and consignees are seeking freight rates which probably will reflect the service and quantity of shipment.•

The Hoover Report on Depot Utilization

The Commission found the government to be operating more than 695 million sq ft of covered storage space, and over 688 million sq ft of improved open storage, at a cost to the taxpayers of approximately $3.5 billion each year

By John H. Frederick
DA Transportation Consultant

WHEN we read a month or so ago about the tremendous quantities of food, clothing and other property owned by the government, enough of a stock of some things to last for 20, 30 or even up to 128 years, many people were shocked.

Very few, however, gave a thought to the amount of storage space that must be necessary to keep all these supplies of all imaginable kinds for all sorts of uses. Now the report of the Commission on Organization of the Executive Branch of the Government (Hoover Commission), dealing with government utilization of warehouse and storage space, has been released.

695 Million Sq Ft

The government was found to be operating over 695 million sq ft of covered storage space for various departments and agencies, as shown in Table I, as well as 668 million sq ft of improved open storage at a cost to the taxpayers of approximately $3.5 billion per year. (Equivalent to almost the entire Federal budget for the fiscal year 1930.)

This total space is equal to about 31,000 acres, or approximately 15,000 ordinary city blocks, or more than twice the size of Manhattan Island. The Department of Defense operates 83 per cent of all permanent government-owned covered storage and 94 per cent of all open storage space at a cost of about $2.9 billion a year.

The Commission found "great excess of storage space, duplication and waste" in the Department of Defense. Partly this arises from the fact that whatever unification or integration has taken place between the different services, it has not yet reached down to warehouse utilization.

Each of the three military services acts as if it owned independent storage systems for its sole use. Often, storage space of one branch of the military service may be in excess close to where another branch may badly need space. Since there is no coordination, no systematic reporting of excess space, and no effective exchange of information on space data or requirements between storage personnel and real property personnel in the three military services or at the Department of Defense level, no cooperation takes place.

The Commission discovered 100 million sq ft of storage space not listed on the operating records of the department. There were numerous indications that operating costs were high by commercial standards. If some sort of coordination in the use of storage and warehousing facilities could be achieved between the services it was estimated that 172 million sq ft of storage space could be eliminated.

Stockpiling of strategic materials accounts for 10.5 million sq ft of covered storage provided by the Department of Defense and 8.4 million sq ft provided by the General Services Administration. Materials in the stockpile are stored at 315 locations—71 military depots; 201 commercial locations which store rubber, cotton, silk and cordage fibres; 22 industrial plant sites; 5 vaults, and 4 government-owned sites for bulk ores.

The report emphasizes that the alternative cost of building new storage or the cost of transportation to government-owned warehouses in some distant place often can be solved more economically by using commercial storage. This is something of which the warehousing industry has been trying to convince various government agencies ever since World War I.

However, the government already is a very large user of commercial warehouse space. The Department of Agriculture pays an annual storage bill of approximately $280 million through contracts with 12,955 commercial

TABLE I—Government-Owned Covered Storage Space

	(Square feet)	
DEPARTMENT OF DEFENSE		
Army	305,795,000	
Navy and Marine Corps	182,665,000	
Air Force	90,589,000	
TOTAL		579,049,000
CIVILIAN AGENCIES		
General Services Administration	18,583,000	
Veterans' Administration	4,444,000	
Atomic Energy Commission	5,602,000	
Department of Agriculture	70,646,000	
Department of the Interior	3,971,000	
Department of Commerce	6,284,000	
Department of the Treasury	2,151,000	
Other Departments and Agencies	4,495,000	
TOTAL		116,176,000
GRAND TOTAL		695,225,000

warehousemen. The Army Quartermaster stores about 80 per cent of its perishable foods in commercial cold-storage warehouses. The General Services Administration spends about $3.9 million a year on commercial warehouse space.

Commercial Space

It was demonstrated in both World War I and World War II that the use of commercial storage is essential to the military services. Out of World War II demands, there resulted the creation of the Federal Emergency Warehouse Plan, with contracts in 41 areas throughout the country. Later this plan was formalized by the Munitions Board and the establishment of commercial warehouse field offices in 12 locations covering the country. This method has been kept alive through the Commercial Warehouse Service Plan of the Department of Defense as the most practicable, economical and flexible way of providing private storage services for the armed services.

The Commission feels that this plan could be readily extended to include the storage of household goods of the personnel of the military forces with considerable savings in transportation and storage of furniture and other effects, which now runs into the millions of dollars annually.

The civilian agencies also were found to be using storage space in a wasteful manner. The Commission mentioned the use of high-cost office space in executive agencies occupied by inactive and overage records which could be transferred to less costly space if the General Services Administration possessed more authority; the waste of valuable warehouse space for records which might as well be destroyed; and the desirability of consolidation of agency record centers with federal records centers to save space, maintenance costs, personnel and equipment.

It also was found that while the Veterans' Administration storage centers were being conducted efficiently, they had more space than was needed, and the suggestion was made that these depots should be absorbed by the GSA.

The Commission stated that "probably the most difficult storage and transportation problem ever undertaken by man" has arisen as a consequence of the commodity price-support program. Under this legislation, the Department of Agriculture had accumulated, as of March 21, 1955, $7.2 million of farm products.

This storage costs for the calendar year 1954 amounted to about $350 million. Of this sum, $280 million went to pay for leased space in commercial elevators and warehouses; $20 million for "resealing" and storing on the farms the commodities which the farmer grows and holds under loans from the department; about $44.2 million for the operation of emergency storage, some of it of a temporary character, which the department has erected and owns, and which amounts to about 70 million sq ft; and $6.7 million in connection with the use of ships in the Reserve fleet for storage.

Recommendations

To correct the deficiencies of the present situation and bring about savings of approximately $253 million annually the Commission recommended:

1. Clarification of Public Law 155 of the 82nd Congress to eliminate any doubt of the intention of the Congress to provide for cross-servicing or transfers of use of storage facilities between military departments.

2. Legislation by the Congress to permit "permanent" storage of household goods of service personnel in commercial warehouses.

3. Legislation giving to the General Services Administration "the necessary authority to integrate into its own control, or compel coordination of, all civilian agency storage" in the Executive Branch.

4. Wider use of commercial warehouse space by both military and civilian departments where such a practice would save money and help to keep new construction down to essential needs.

5. Use of a realistic, accurate and uniform cost accounting system in all agencies to permit reliable comparisons between the actual cost of government storage facilities and the charges of commercial warehouses for like services; complete and continuing inventories of storage space and its use; and consideration of the feasibility of construction and operation by private industry of any additional warehousing which may be found to be necessary.

6. Closer liaison between the Defense Department and the GSA in matters concerning storage, including possible arrangements for transfer of use of space between military and civilian agencies.•

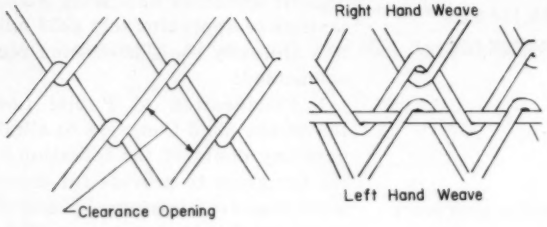
DA Materials Handling Primer—IV

3-B-1. Belt Conveyors

By D. O. Haynes
DA Materials Handling Consultant

WOVEN WIRE & FLEXIBLE GRID BELTS

Woven metal belts greatly increase the scope of package belt conveyors to include fields where fabric belts either are not satisfactory or cannot operate. Their unique advantages are their ability to withstand temperature as high as 2,200 deg F; they can be immersed without damage in water, oils or chemicals; they are porous and permit free circulation of air and heat; they can be readily cleaned, and they are flexible.

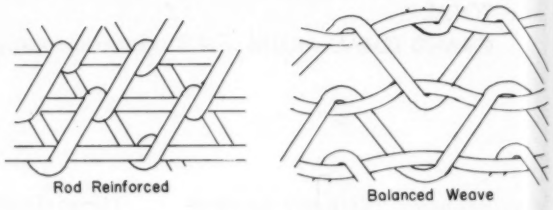


ONE-WAY WEAVE—ALTERNATING R&L

Woven metal belts are made by weaving wires together in the form of spirals. They are designated as right- or left-hand according to the direction in which the spiral advances.

The conventional or one-way weave is composed entirely of either right- or left-hand spirals. The surface of such a belt is a series of small ribs running diagonally in one direction. This type has a tendency to creep in the direction of the diagonals as it passes over pulleys.

This last difficulty is overcome by taking sections of left- and right-hand weaves and connecting them together by means of rods. This construction is known as alternating weave. The sections must not be longer than three-quarters of the smallest pulley's diameter over which the belt is to pass.



ROD-REINFORCED—BALANCED WEAVE

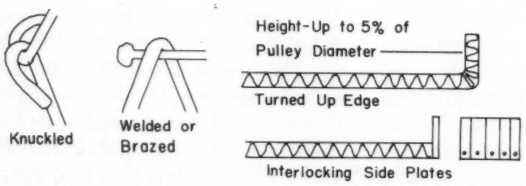
Rod reinforcing of either one-way or alternating weaves results in a stronger belt than without this feature.

The balanced or equalized weave is produced by interlacing right- and left-hand spirals which are joined together by crimped connector rods. The function of the rods is to hold the spirals in position so that they do not spread laterally. This type of belt has little tendency to creep and does not tend to become narrower with usage.

All weaves are offered in a wide variety of sizes, both as to the gage of wire used and the mesh opening. Materials used include high and low carbon steel, Monel metal and stainless steel.

Positive-drive woven wire belts are described on the following page.

SELVAGES & ACCESSORIES



The edges of woven belts have either knuckled or welded selvages to protect the operator from possible injury. The latter is the stronger of the two.

The most economical way to provide an edge guard is to turn up the edge of the woven belt, but for not more than 5 per cent of the pulley diameter. Hinged side plates and center guides are optional features.

CYCLONE FLEX-GRID

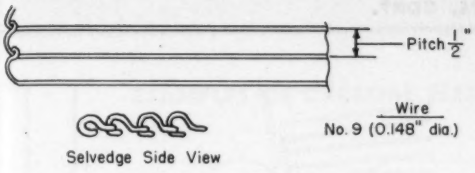
This is a relatively new development in the wire belt field. It is composed of a series of No. 9 gage wires set parallel on one-half inch centers. Materials available are carbon steel (uncoated, galvanized or tinned), and stainless steel.

Flights (cleats) made of the same gage wire as the cross members are welded to the tops of the latter.

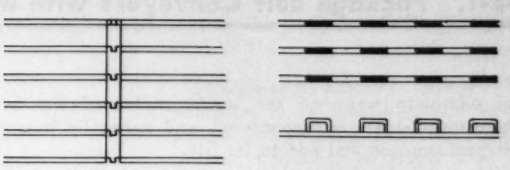
Hinge clips prevent the cross wires from spreading and greatly strengthen the belt. One or more rows are used according to requirements.

Details of Flex-Grid drives for both straight and curved sections are covered in the following page, where woven wire drives are described.

EDITOR'S NOTE: This series of copyrighted articles is being excerpted from a forthcoming book by the author. The editors of DISTRIBUTION AGE gratefully acknowledge the privilege of exclusive prepublication magazine rights.



HINGE CLIPS & FLIGHTS



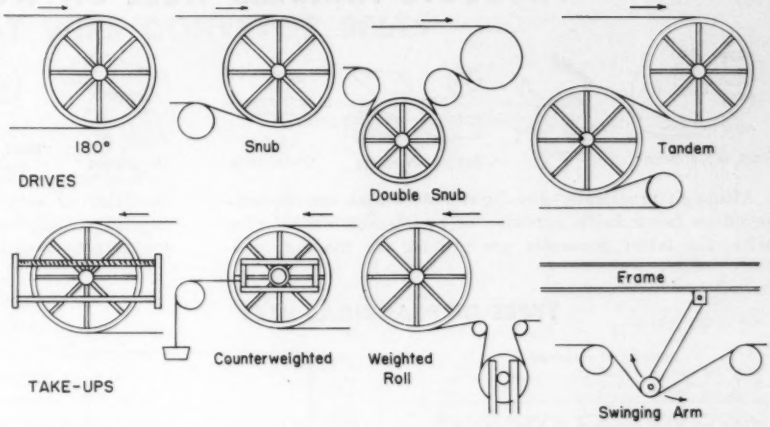
CYCLONE FLEX-GRID DETAILS

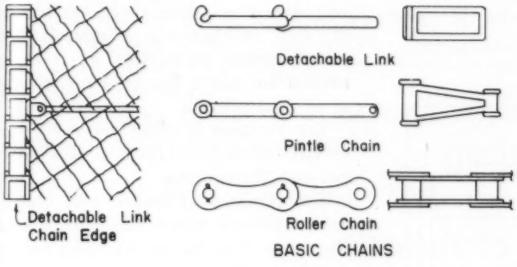
WIRE BELT DRIVES

DRIVES & TAKE-UPS

Head and tandem but not wrap drives are used with wire belts. The end pulleys are straight faced and at least 2 in. wider than the belt. Drive pulleys usually are lagged. Acute snubbing is frequently needed to improve traction and reduce slippage.

Take ups are much the same as those used with fabric belts, except that they are more ruggedly constructed.



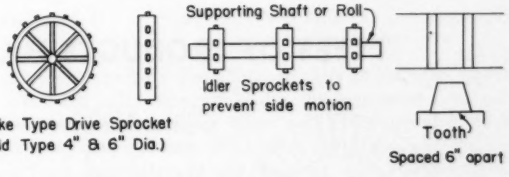


CHAIN EDGE-DRIVES

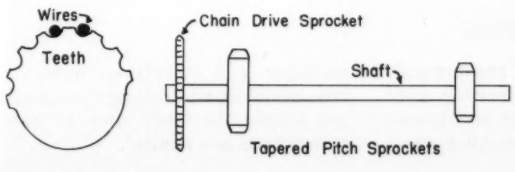
Wire belts can be driven positively if they are made with chain links at their edges. Sprockets with teeth to fit the chain provide the positive drive. Detachable links are the least expensive; pintle links are stronger; but roller links are the most satisfactory for conveyors from operating and length of service standpoints.

FLAT WIRE SPROCKET DRIVE

Flat wire belts are driven by sprockets which fit either the 1- x 1-in. or ½- x 1-in. mesh. Diameters from 4 in. to 18 in. are available, but 6-in. is recommended as the most satisfactory. Where necessary, idler sprockets are mounted on supporting rollers or shafts to help eliminate lateral movement of the belt.


Supporting Shaft or Roll
Idler Sprockets to prevent side motion
Tooth
Spaced 6" apart
Spoke Type Drive Sprocket
(Solid Type 4" & 6" Dia.)

FLEXIBLE WIRE GRID DRIVE

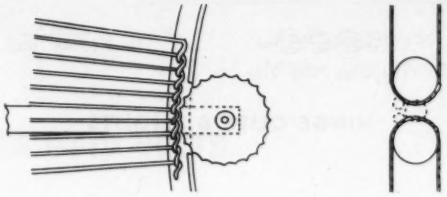


These belts are so flexible that they can be driven by unusually small sprockets. There are three sizes offered: 14 teeth, 2.489 in. OD; 19 teeth, 3.280 in. OD, and 25 teeth, 4.231 in. OD. The drive is, of course, positive.

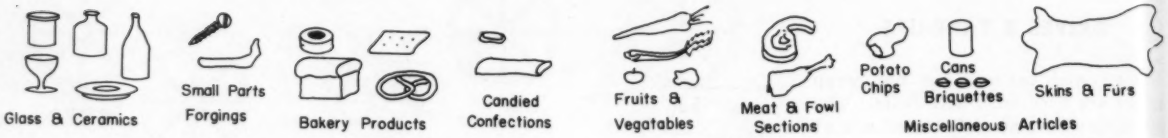
Curves up to 180 deg are possible with this type of belt, but matched pairs of special tapered-pitch, positive drive sprockets must be used in order to reduce friction

and eliminate wear on the inside radius of the belt, where most strain is encountered, and generally improve belt performance and add to its life.

It is pointed out that this is not the only type of wire belt that can be used in curved sections. Double-weave woven wire belt has been utilized to develop a patented lateral bend in a powered conveyor.

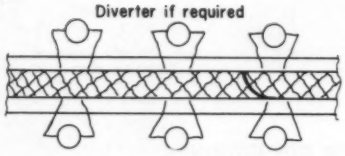


PRODUCTS HANDLED WELL ON WOVEN WIRE

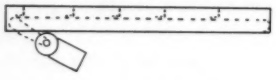


Although practically any light object that can be conveyed on fabric belts, can also be handled on woven wire belts, the latter generally are utilized for moving commodities or articles which, by their inherent nature or the effects of the processes to which they are subjected, make them unsuitable for fabric belt conveying.

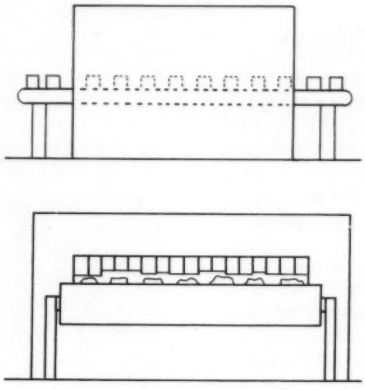
TYPES OF PRACTICAL USES



Many food products are first prepared and then transported on woven belts through the machine shown above which might be for washing, pasteurizing, heating, cooling, or similar processing.



One of the characteristic uses of woven belt conveyors is to move articles through heating devices such as baking ovens, lehrs and brazing furnaces where high temperatures prevail.



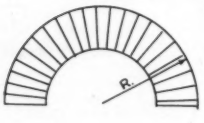
SELECTION FACTORS

The selection of a woven wire belt conveyor involves technical problems not encountered in selecting fabric belt machines. Specialized knowledge of the mechanical, chemical and metallurgical properties of wire is needed to select the proper one for a given condition.

The problem is concerned with two closely interrelated factors—the product and the process.

The product's physical and chemical properties affect the selection of the belt. The nature of the process, speeds required and temperatures involved all must be considered in selecting the drive, take up, etc. Best advise—consult a reliable manufacturer.

TYPES OF PRODUCTS HANDLED ON CYCLONE FLEX GRID



BELT WIDTH	OUTSIDE RADIUS
6"	$20\frac{1}{4}$"
12"	42"
18"	$63\frac{3}{4}$"
24"	$85\frac{1}{2}$"

The products must be quite light and their dimensions such that they can be carried on wires spaced on ½-in. centers. Flex-Grid finds its widest application to those products with surfaces that might ordinarily peel off or cling to other types of belt. Such materials carry well on round smooth wires.

WOVEN WIRE USES

Acid and alkali baths, baking, blanching, brazing and soldering, candy making, food processing degreasing, washing and drying, glass annealing and decorating, grading and sorting, heat treating, drawing and sintering, heating, cooling and freezing, leather and fabric finishing, pasteurizing and sterilizing, quenching and draining and rubber processing are among the many uses to which woven belts are applied.

EXAMPLES OF CYCLONE FLEX-GRID

Because of its ability to handle light products in a continuous system, whose components can be easily cleaned, Flex-Grid is widely used in the bakery field, especially for handling, cooling, icing, and for wrapping bread. Relatively small sprockets permit its use in multiple-deck conveying where there is a limited overhead space in which to operate.

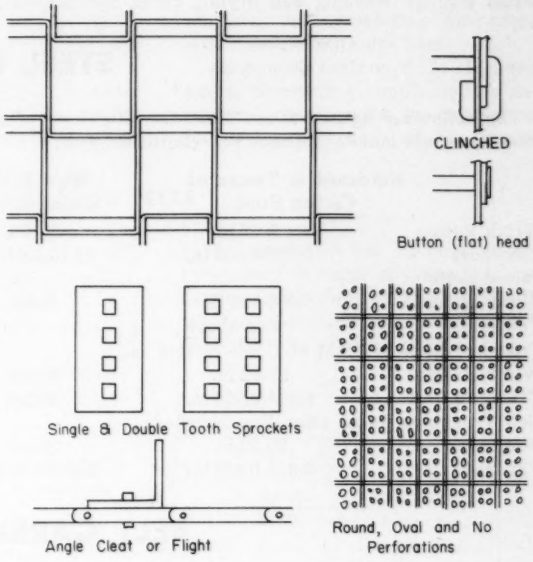
FLAT WIRE CONVEYOR BELTS

Flat wire belts are made of cold-rolled carbon steel (galvanized) or stainless steel flat wire ⅜x0.046. Connectors are either 12- or 11-gage wire. The latter produces a stronger belt.

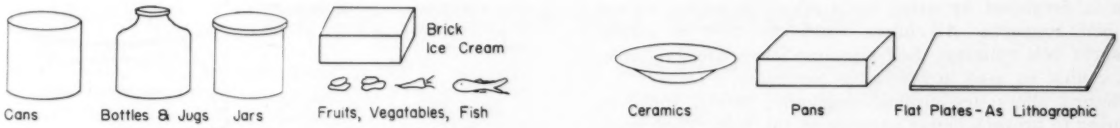
Three standard meshes are available with openings (width by length) 1- x 1-in., ½- x 1-in. and ½- x ½-in. Selvages may be clinched or buttonhead. Widths vary from 18 to 48 in. The table top variety is made only with ½- x 1-in. mesh and 11-gage connecting wire.

Flat wire belts may be driven by lagged, straight faced pulleys, but the drive is not positive. Slipping may occur. Positive drive is secured by the use of sprockets with teeth shaped and spaced to engage the mesh of the belt. They are spaced a minimum of 6 in. apart. Cut-tooth sprockets are recommended as giving better operational performance and less belt wear than the cast variety. Take-ups and other drive mechanism components are similar to those used with woven wire belts.

Cleats, or flights as they are sometimes called, permit the use of flat wire belting on inclines.



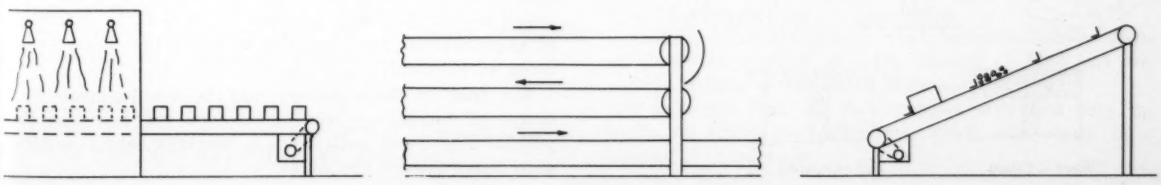
PRODUCTS HANDLED WELL



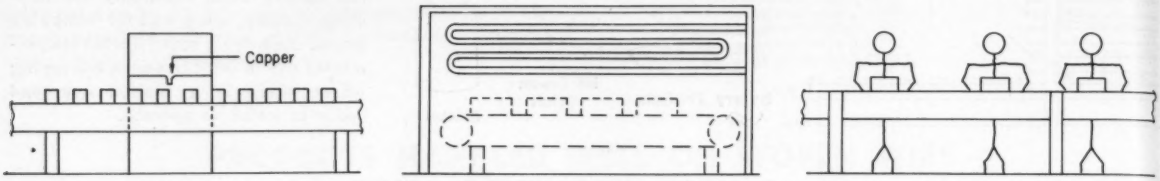
In general, flat wire belts are suitable for carrying the same types of products as those handled well on woven wire belts. The latter can be had with fine meshes to handle small items, but the table-top variety of flat belt also presents a smooth carrying surface.

In the last analysis, the choice usually is between woven and flat wire belts determined by the processes involved. The meshes of the latter have relatively greater open spaces than the former. Flat wire belts are well suited where free circulation of air, heat or water is required.

TYPICAL APPLICATIONS



The flat wire belt is widely employed in the food processing industries. It is used to carry meats, fruits, vegetables and fish through the various stages of processing and packaging, including washing or sterilizing and drying the containers; as well as the processes of pasteurizing, heating, cooking, cooling, etc.

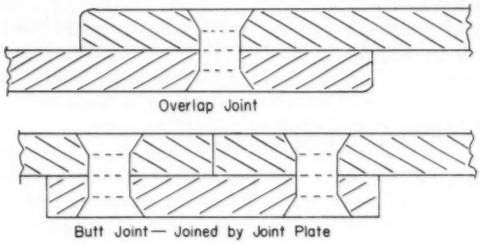


Flat wire belts are not limited in their application to the food field. They handle such articles as lithographic plates through washing and drying, china (on table-top belt) while it is passing through decorating lehrs and for handling such items as hot rubber stock as it moves from one process to another.

STEEL BAND BELTS

The following figures taken from the literature of a steel band belt maker, indicate belt characteristics:

	Hardened & Tempered Carbon Steel	Hard Rolled Stainless Steel
Width Range	8-32 in.	8-32 in.
Thickness	0.015-0.063 in.	0.015-0.048 in.
Joined Belts		
Width Range	38.5-124 in.	Same
Thickness	See above	
Troughed Belts (Height of Cord—7/16-1 in.)		
Width Range	20-32 in.	Same
Thickness	0.055-0.063 in.	Same
Self-Troughing Belts (Not Pre-troughed)		
Width Range	20-32 in.	Same
Thickness	0.024-0.055 in.	0.024-0.048 in.



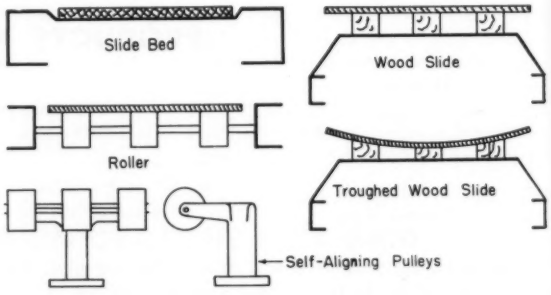
Allowable Temperatures		
Usual limit	250 deg F	1000 deg F
Unusual	750 deg F	2100 deg F

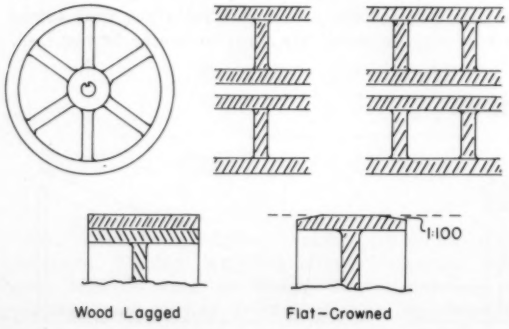
BELT CARRIERS AND DRIVES

BELT CARRIERS

For relatively short runs, sections of slide bed are used to support steel bands. In heavier applications, less friction is developed by using wood slides or rollers to act as belt supports. All idlers must run true to secure straight belt running. Self-aligning idlers are available, but cannot be used in reversible conveyors.

Return idlers are utilized sparingly, just a sufficient number to prevent undue sagging of the belt. They must be employed, however, at breaking points, where the conveyor changes for horizontal to inclined travel.



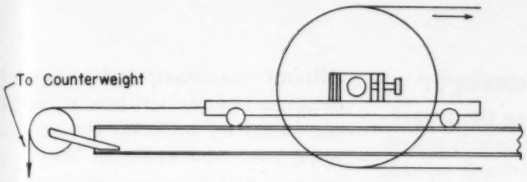


DRIVES FOR STEEL BAND BELTS

The pulleys used with steel band belts have diameters 1000 to 1200 times greater than the thickness of the belt, which means they may be from 1.5 to 5 ft. in diameter. It is considered good practice to make the diameter as large as practical.

The face of these pulleys may be wood-lagged as a means of increasing friction between the belt and the pulley. The usual pulley has a straight center section, with taper toward the edges.

The drives used to power steel band belts are relatively simple. Snubbing is important in order to increase the wrap of the belt around the pulley, to minimize slipping.



The head pulley usually is driven directly. A speed reducer is included between the gearmotor and the driving shaft. Variable speed changers of gear type sometimes are used.

Screw type take ups, such as those found in fabric belt drives are used with steel band conveyors, but they are more sturdily constructed to stand up under the weight of the belt and the heavier duty service for which these machines generally are used.

Belt cleaners or scrapers are employed where it is necessary to remove materials from the belt's surface.

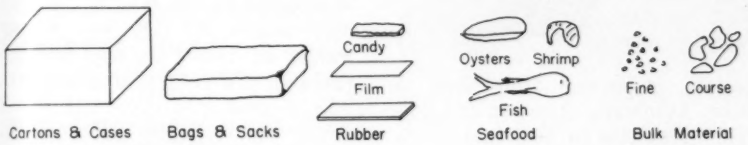
STEEL BAND BELT CONVEYORS

The arrangements used indicate the wide variety of possible combination horizontal and inclined paths for conveying on steel band belts. In great measure these variations are called for in the handling of such bulk materials as cereals, minerals, rock, earth, sand, gravel, charcoal, pulp and sawdust.

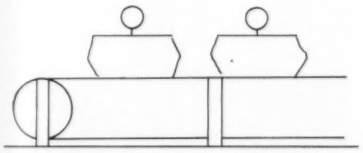
In the packaging field, the most popular arrangement is the worktable, similar to the set-up used in assembly and processing operations where fabric belts are used.

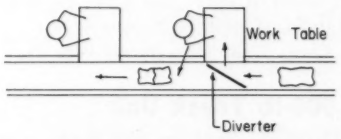
The smooth surface of the steel belt makes diverting a simple matter and permits containers to be stopped on line without turning off the power.

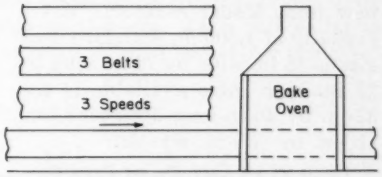
LIGHT PRODUCTS ON STEEL BAND BELTS



The above do not by any means cover the full range of items that are carried successfully on steel bands. It is intended to illustrate those that are included in the "package field."







Steel bands are used in the food processing industries to handle fish, meats, etc. especially during the preparatory stage. The surface of steel bands is easily cleaned and provides perfect diverting. It also is used in fields where molten materials are cooled and solidified on the belt, including candy, rubber and film.

WHICH PACKAGE BELT CONVEYOR?

The following check list will prove helpful in planning a package conveyor installation—the type of conveyor to use, based on given conditions and then the specifications:

1. DETAILED LAYOUT OF WORK AREA

This to include all structural features, columns, doorways, any obstructions, other paths of travel and locations of other equipment.

2. PROPERTIES OF PRODUCTS

a. Containers, b. Individual Items, c. Loose Materials. For each of the above, the kind, shape, dimensions, nature of contacting surfaces (rough, smooth, slatted, raised bottom, solid, cord, wire- or strap-bound).

Also physical condition (wet, dry, hot, cold, sticky, greasy, etc.). Also chemical properties.

3. WORK AREA CONDITIONS

Conditions encountered in the work area (temperatures, degree of humidity, chemical fumes, dust, etc.).

4. DESCRIPTION OF PROCESSES

Type of process (baking, brazing, drying, cooling, spraying, immersing, etc.).

Requirements as to air, heat or water circulation, temperatures, presence of grease, kerosene, gasoline, etc.).

5. CONVEYOR SPECIFICATIONS

a. Basic elements of the conveyor such as, bed type frame, supports, (fixed, castered, adjustable), etc.

b. Belt (kind, width, speed required).

c. Drive and drive assembly parts (fixed or variable speed, location of drive unit, one direction or reversible.)

d. If conveyor can be curved, details of requirements if to be so used.

e. Inclined details, if to be used, including length, angle of elevation, location of drive, method of feed and discharge, incline or decline or both, etc.

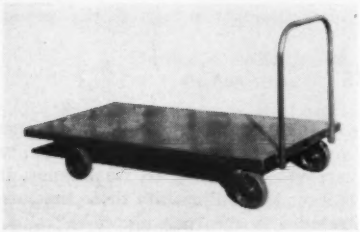
It is hoped that the details given here will help the buyer in arriving at decisions which will result in a successful installation.

DA NEW PRODUCTS

. . . . FOR FURTHER INFORMATION LEA

Light Duty Hand Truck

A hand truck, suitable for light duty work, has been developed by the **Mercury Mfg. Co.** It also can be equipped with towline attachments for both overhead and

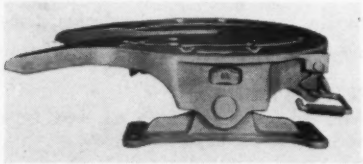


under-floor conveyor lines. The new unit, Model A-209MD, has a capacity of 1,500 lb. Standard deck size is 32 in. wide by 72 in. long by 12 in. high. Also available is the 32-in. by 40-in-long deck size and six-in. by two-in. wheels.

Circle 25 on Card Facing Page 49

Fifth Wheel Unit

Simplex Fifth Wheel announces a new fifth wheel specially designed for dependability, light weight and low cost. Plate is one-piece cast steel, full 36 in. in di-

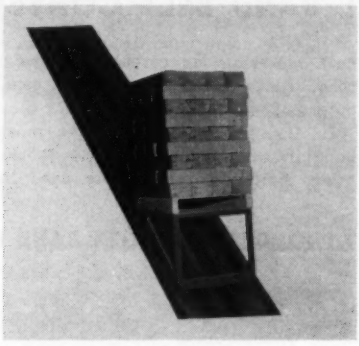


ameter, webbed and reinforced to permit a high safety factor for the heaviest loads. All parts of the locking assembly are interlocked and the forged steel jaw is flanged to provide greater kingpin bearing area. The lock unit is designed for one-hand operation.

Circle 26 on Card Facing Page 49

Floor-to-Floor Conveyor

The Wehle Conveyor Co. recently has developed two new types of all steel floor-to-floor conveyors. A pallet type unit conveys loaded



pallets or barrels from floor to floor. Automatic stop, top and bottom. Available in 500- and 2,000-lb capacities. The platform is constructed of steel and rides on four casters of sufficient capacity.

Circle 27 on Card Facing Page 49

2,000-lb Truck Unit

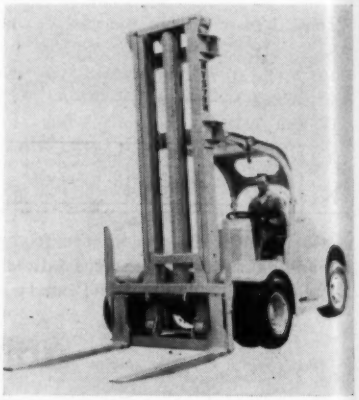
A new, light-weight hydraulic lift, capable of moving materials anywhere throughout a multi-storied building, has been devel-

oped by the **John Morrell Mfg. Co.** This versatile unit weighs only 2,000 lb, and can travel with full load and rider in most elevators without exceeding safety specifications. The Morlift has a 2,000-lb capacity and has two speeds forward and two reverse. Its short turning radius on a 180-deg axis permits operation in a six-ft aisle. Features include simplicity of design, easy accessibility, built-in battery charger and automatic controls. All parts are standard and can easily be replaced.

Circle 28 on Card Facing Page 49

12,000-lb Capacity

Availability of a 12,000-lb-capacity lift truck line has been announced by the **Hyster Co.** The new model, RT-120, has a net weight of 14,600 lb, and incorporates an overhead tilting mechan-



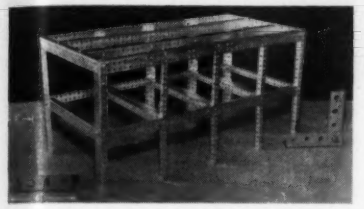
ism claimed to reduce stress in the frame and tilt mechanism. Standard lift height of the model is 17 ft 6 in. Optional heights are available ranging from 8 ft 2 in. to 24 ft, with an outside turning radius of 180 in.

Circle 29 on Card Facing Page 49

Storage Racks

This experimental shelf and pallet rack, presented by **Structo System, Inc.,** is engineer's model made with scaled down version of regular angle steel bars which are used for a variety of installations. Full-sized angles, joined with

standard ⅜-in. bolts, can be used for permanent or temporary storage racks. Regular angles are available in 11, 12 and 14 gage

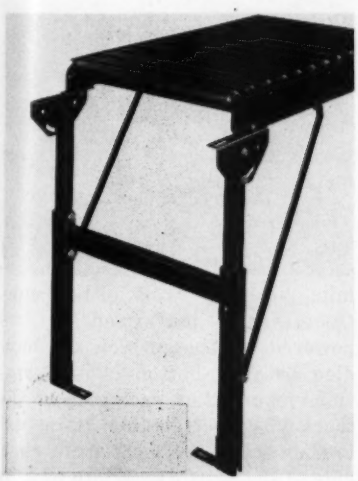


steel and angle sizes are three in. by 1½ in., and 1½ x 1½ in. The bolts are placed through a series of round and elongated holes.

Circle 30 on Card Facing Page 49

Conveyor Stand

A new permanent-type support stand for mounting gravity and power conveyors to the floor recently has been announced by **The Rapids-Standard Co., Inc.** The new units have telescoping steel legs

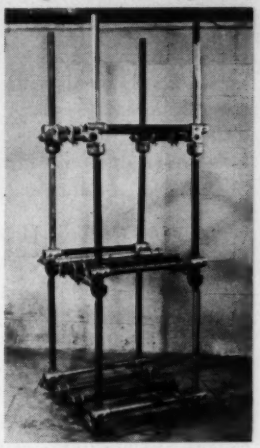


for height adjustment, secured by four serrated nuts for rigid, safe operation. A variety of widths and heights are available. Capacities range from 2,000 to 4,000 lb. The new Rapistand replaces the former slotted stand for permanent installations of conveying equipment.

Circle 31 on Card Facngi Page 49

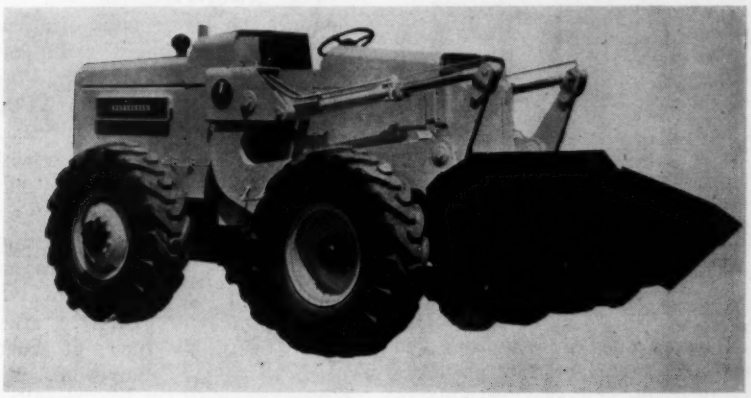
Pallet-Making Fittings for Various Type Units

Illustrated are three stacked pallets that have been assembled from one-in. standard pipe and **Amidon Engineering Co.** fittings. Pallets are constructed without need for threading. If movable pallets are required, swivel casters can be used at each of the four corners. Fittings are available in a wide range of styles, and as originally introduced, are suitable for assembling racks, scaffolds, crib frames, adjustable shelves, stages and similar frameworks from standard pipe. Storage racks made of Amidon fittings and standard pipe can be assembled in a short time for any material or weight in a wide range of sizes and capacities. Racks can be disassembled and fittings stored in a small space when no longer needed, or dimensions can be altered as space demands and as storage needs change. Same fittings and pipe can be used to erect adjustable scaffolds for plant maintenance. All casters should be secured to the scaffold. For the stem type casters this can be done with the sleeve. For the flat top casters, a two-in. collar of 1¼-in. standard pipe with a ⅜-in. nut welded on the side. When this collar is welded to the plate of the caster it provides a good socket for the pipe. Brakes can be added to most casters.



Circle 32 on Card Facing Page 49

New Four-Wheel-Drive Tractor-Shovel



The third, and largest, of the completely new four-wheel-drive tractor-shovels to be added to the Payloader line recently has been announced by **The Frank G. Hough Co.** Designated as the model HO, this newest unit has a capacity of two cubic yards. It is similar in styling and outward appearance to the models HU and HH. The features of pry-out bucket action, 40 deg of breakout at ground level and new standards of safety and stability are common to all three new models. The new HO model

(*Please Turn Page*)

NEW PRODUCTS and EQUIPMENT

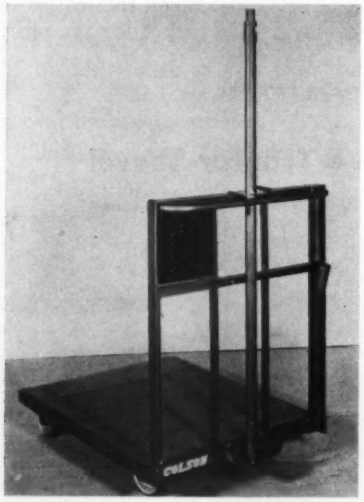
CONTINUED FROM PREVIOUS PAGE

features a newly developed complete power-shift transmission. The clutch pedal has been eliminated, and all shifts through all speed ranges in both forward and reverse can be made without coming to a stop or slowing down. The new model also is available with either gasoline or diesel power. A load shock device is optional.

Circle 33 on Card Facing Page 49

Conveyor Truck

A new line of 30 conveyor trucks has been developed by **The Colson Corp.** For floor towing the trucks have been designed with both chain or cam type towing attachments. For overhead towing, the trucks are available with either a

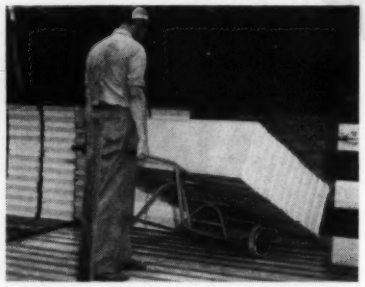


telescopic mast or a jointed rod towing attachment. Platforms are 32 in. wide and are available in 40-, 48-, or 54-in. lengths. Available are mold-on rubber tired wheels; rubber tired, ball bearing, demountable wheels. Angle racks, which extend 37 in. above the platform, are equipped with blackboards and tubular bill pockets.

Circle 34 on Card Facing Page 49

General Purpose Truck

U. S. Products, Inc., announces the release of a new, extra heavy duty general purpose hand truck. The new unit, Model RL-10, has center of gravity and balance

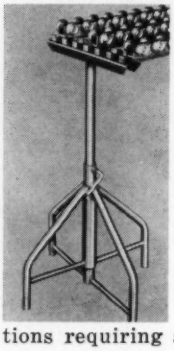


planned for easy maneuvering. Truck dimensions are 73 in. long by 28 in. wide by 14 in. high, and weighs about 73 lb. Constructed of tubular steel with solid steel forks. Unit also has dual rubber handle grips and rubber wheels.

Circle 35 on Card Facing Page 49

Conveyor Stand

The Alvey-Ferguson Co. announces the development of a new four-leg folding stand to support all types of portable conveying

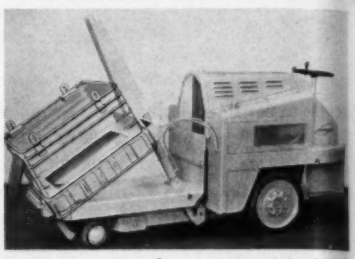


equipment. Designed primarily for use with AF Live Rail wheel conveyor, it can be supplied for use with roller gravity, other types of wheel conveyors, and many applications requiring a strong, portable support. Folds flat (less than three in.) for convenient carrying, stacking and storage. Lightweight stand is of tubular construction and is adjustable. Unit may also be supplied with casters.

Circle 36 on Card Facing Page 49

Attachment Device

A specially designed hydraulically powered attachment for automatic end dumping or skid boxes has been developed by **The Elwell-Parker Electric Co.** The at-

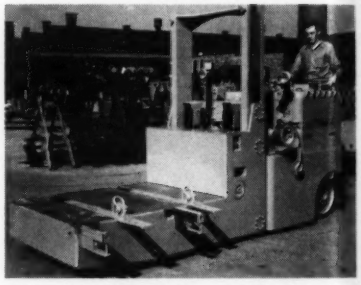


tachment can be used with both electric and gas powered trucks with capacities of 4,000, 6,000 and 10,000 lb and larger. Loading and dumping operations are automatic. It is especially desirable for the movement of materials in skid boxes or racks.

Circle 37 on Card Facing Page 49

Ambidextrous Truck

A new die-handling industrial truck that can load and unload dies from either side or the end of its platform was introduced by the **Automatic Transportation Co.** The side-loading mechanism is of the motorized pin type, which per-



mits handling from either side. Operation is performed by two powered winches, which are handled by push-button control stations mounted on each side of the truck. Two retractable 12-in. extension arms are located on each side of the platform. Width of unit is 50 in., and lifting range is 65 in.

Circle 38 on Card Facing Page 49

Colored Tying Wire

Colored tying wire, offered by the **Inland Wire Products Co.,** works smooth and well in the same machines as conventional tying wire. This new wire, or round steel

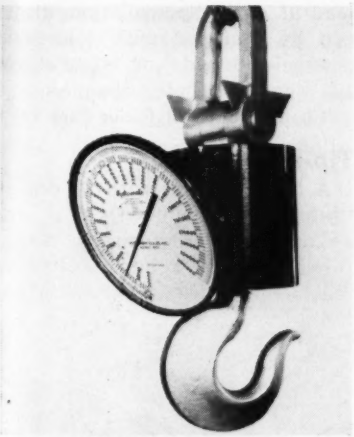
strapping, may be used for purposes of identification, as well as beautification. The vinyl coating used provides a high resistance to rust, is elastic with a smooth sur-

face, and may be used in the standard tying machines without danger of chipping, peeling or stripping. The wire is available in red, yellow, blue and green, and in 17 and 18 gages. Stocks are available in 25-lb coils.

Circle 39 on Card Facing Page 49

Crane Scale

A new crane scale unit, claimed to be the heaviest capacity, direct reading automatic scale ever built, has been developed by **Hydroway Scales, Inc.,** ranging in capacities from 500 to 200,000 lb. Designed for high tonnage weighing, the

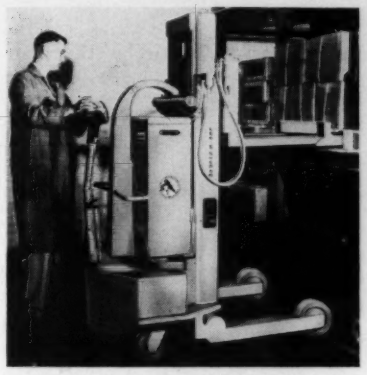


static hydraulic type scale has a capacity of 100 tons. It is designed with alloy-steel cylinder and suspension parts, including an ultimate load safety factor of 500 tons. The unit is equipped with tare adjustment, so that net load readings can be taken direct from the dial.

Circle 40 on Card Facing Page 49

Walkie Type Truck

The HydraFork, a new walkie type electric tiering truck equipped with hydraulically extendable forks, has recently been announced by **Lewis-Shepard Products, Inc.** 3,000-lb, 48-in. long loads can be handled in 67-in. aisles. The unit does not straddle



loads. Forks are extended into the pallet, and load and pallet are lifted over the wheels and retracted into the truck. The truck handles pallets of any width and is available in either 2,000- or 3,000-lb capacities. The control handle operates in any position, including vertical.

Circle 41 on Card Facing Page 49

Truck Leveler

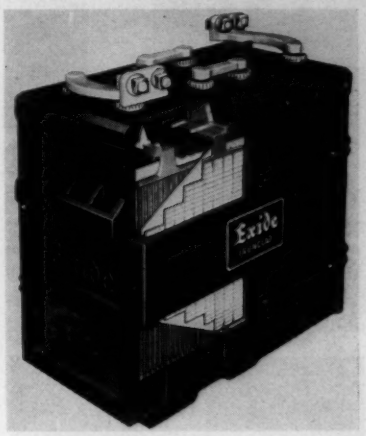
A new device which is claimed to save dock space and help attain fastest loading and unloading of carriers now is being manufactured by **Rotary Lift Co.** Called the Rotary Truck Leveler, it is de-

signed to raise or lower the entire rear section of any truck or trailer to bring the bed on a level with the loading dock. The non-skid steel platform is 10 x 14 ft with the front end pivoted on a heavy hinge assembly. Two 40,000-lb-capacity hydraulic jacks raise or lower the end nearest the dock. Vertical travel is 24 in.

Circle 42 on Card Facing Page 49

New Type Battery

A new railway car lighting and air conditioning battery which delivers full rated power initially and throughout a longer working life has recently been introduced

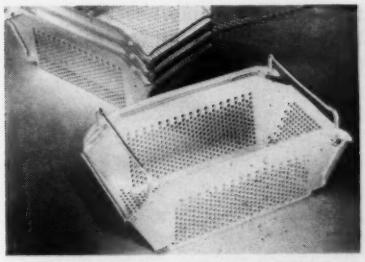


by the **Exide Industrial Div. of The Electric Storage Battery Co.** The new EH Exide-Ironclad has a 10 per cent increase in the size of the plates, thus exposing more active material to the electrolyte. Features include use of new plastics and patented alloys.

Circle 43 on Card Facing Page 49

Perforated Baskets

The Chas. Wm. Doepke Mfg. Co., Inc., recently announced the availability of its new line of NesTier perforated stainless steel baskets, which combine strength, rigidity, rapid draining and easy cleaning features. Available in five sizes ranging from 12 to 36 in. in length, the units can be supplied in various types of stainless steel, as



well as in aluminum or cold rolled steel. A variety of perforation sizes also is offered. Large unit loads can be tiered on skids or pallets for transporting by powered or hand lift trucks.

Circle 44 on Card Facing Page 49

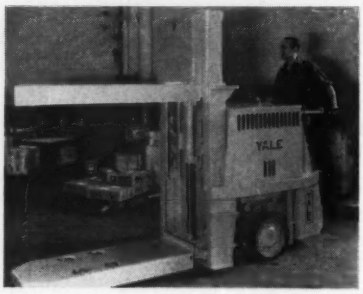
(*Please Turn Page*)

NEW PRODUCTS and EQUIPMENT

CONTINUED FROM PREVIOUS PAGE

Dual Lift Truck

A special dual lift platform truck which can transport two skids simultaneously, has been introduced by **The Yale & Towne Mfg. Co.** The 4,000-lb-capacity truck is fitted with two independently operating platforms which

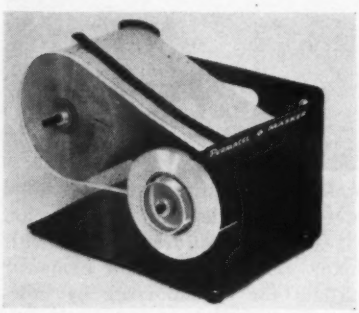


can be separated to a maximum vertical distance of 62 in. The upper platform fits over the lower one in its lowered position. The upper platform provides a free lift of 35 in. with a maximum of 69, while the lower can lift a skid a total of 4½ in. Overall height of the unit is 60 in.

Circle 45 on Card Facing Page 49

Masking Machine

A new, light-weight, portable masking machine recently has been developed by the **Permacel Tape Corp.** Designed for both two

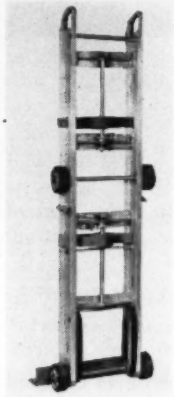


and three tone masking and general masking of automotive units, the new Six Masker weighs 7½ lb and dispenses either a three or six-in. width of masking paper with masking tape in widths of ½ to one in. aligned along one edge.

Circle 46 on Card Facing Page 49

One-Half-Ton Capacity

A new ½-ton-capacity dolly, specially designed for easier handling of such outsized appliances as freezers and 80-gal water heaters, is being introduced by the **Yeats Appliance Dolly Sales Co.** The new dolly features an aluminum alloy frame, caterpillar step glide and strap ratchet, and in addition, is equipped with two straps and ratchets and four wheels instead of two, enabling an operator to roll heavy appliances on the horizontal rather than balancing them vertically.



Circle 47 on Card Facing Page 49

New Truck Line

A new fork lift truck, the Hi-Duty 400, has been announced by the **Transitier Truck Co.** Features

include standard component parts, power steering even on low capacity lift trucks, higher free lift, and easier service and maintenance. The 4,000-lb capacity unit offers 10 ft of stacking height with a mast collapsed height of only 83 in., which permits double and triple stacking in freight cars, under balconies or under other low overhead conditions. A fast lift speed, 45 ft a minute loaded, adds to handling efficiency.

Circle 48 on Card Facing Page 49

Hand Fork Truck Line

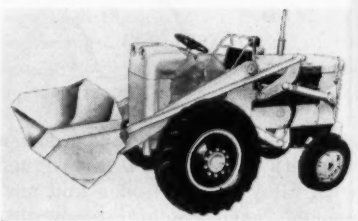
The Hi-Lo Stacker, a line of battery-powered, tilting fork hand trucks in 1,500-, 2,000-, 2,500-, and 3,000-lb capacities, 24-in. load center, has been added to the series of hand trucks manufactured by

the **Clark Equipment Co.** Ten deg of tilt back and three deg forward are accomplished through a double acting cylinder which rigidly supports the upright channels and load at any tilted position. Units can be equipped with telescopic channel uprights or with single lift (non-telescopic) channels.

Circle 49 on Card Facing Page 49

Tip-Back Bucket

A larger bucket with 25 deg of tip-back at ground level is announced by **Tractomotive Corp.**, for its TL-10 Tractor-Loader. The redesigned bucket now has a ca-



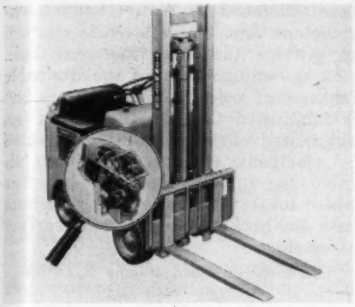
pacity of a full cubic yard. Width had been increased by 1½ in. allowing the bucket to be operated flush against walls and into corners. Turning radius is 11 ft. At a low carrying height of three ft the

bucket is tipped back to an angle of 45 deg, by retainment of the automatic tilting action during the raising cycle.

Circle 50 on Card Facing Page 49

Transmission Unit

Fork lift truck transmission of the torque converter type, available in lift trucks manufactured by **Towmotor Corp.**, facilitates truck operation and eliminates the need for a clutch or conventional gear shifting. A feature enables

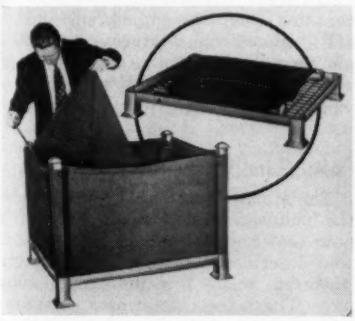


the operator to "inch" the lift truck along when necessary, while maintaining high engine speed for full power lifting, mast tilting or hydraulic accessory operation. It also permits momentary stopping for load pick-up, and starting without need for operating transmission controls.

Circle 51 on Card Facing Page 49

Canvas Container

A new development by the **Paltier Corp.**, is a canvas container which permits handling bulk solids, and is claimed to eliminate boxes as well as reduce handling costs. The unit collapses flat with



the base when not in use, yet becomes a bulk container when tiering posts are set up. The container can be furnished in canvas, duck, water-resistant materials, rubber or plastic.

Circle 52 on Card Facing Page 49

Combination Conveyor

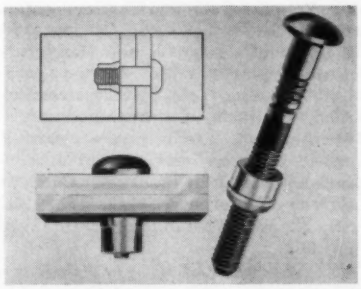
A newly designed conveyor, combining live rollers on the straightaway and gravity rollers on merging sections recently has been developed by the **Sage Equipment Co., Inc.** The one-in. rollers are closely spaced to carry rela-

tively small flat, stamped parts. The unit is equipped with guard rails on the curves and straightaway. The rollers on the curved sections are graduated in length where they join the live roller conveyor. Steel legs are adjustable vertically to give the desired pitch. Motor has variable speed control.

Circle 53 on Card Facing Page 49

Lock Bolt Unit

The Townsend Co. now is producing a new commercial lock bolt claimed to replace rivets, bolts



and other fasteners for greater speed and uniformity. The unit consists of pin and a collar.

Circle 54 on Card Facing Page 49

Stitching Method

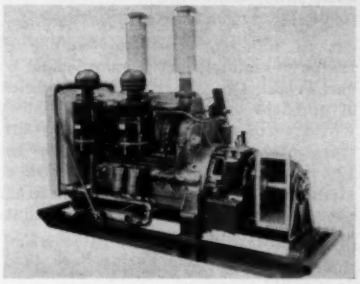
A new wire-stitching method—putting an arc into flat wire as it runs through the stitching machine prior to the stitch-forming operation, has been announced by the **Tressel Box Stitching Co.** Because of the high column strength of stitches made from a new type wire, lighter gauge wire can be used, with a savings in wire cost as high as 24 per cent compared to conventional flat

wire stitches. A coil of smaller size wire, of the same weight, will deliver 42 per cent more stitches in the new machine.

Circle 55 on Card Facing Page 49

Torque-Converter Unit

A line of diesel-engine torque-converter power units has been announced by the **Harnischfeger**

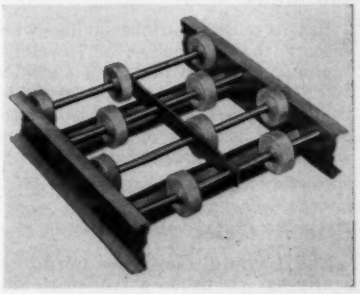


Corp. The unit provides smooth, steady power over the full speed range, and has a cushioning effect which eliminates shock loads from driven equipment.

Circle 56 on Card Facing Page 49

New Conveyor Design

The **Metzgar Conveyor Co.**, recently introduced a new conveyor design which uses nylon plastic



wheels running on nylon bearings mounted in an aluminum frame. Claimed to be 20 per cent lighter.

Circle 57 on Card Facing Page 49

FREE LITERATURE

Pallet Design

The **Supreme Mfg. Co.**, recently issued a brochure illustrating and describing the new type Ozark Master pallets. The units are manufactured to meet the modern need for economy and efficiency for any type of industry or handling including warehouse operations. The Ozark area is claimed to be the nation's leading source for the high quality lumber used in making these pallets. A variety of sizes are available, including special sizes to meet specific requirements.

Circle 60 on Card Facing Page 49

Shipping Directory

A directory, published in the interest of and for the convenience of traffic personnel, has been released by the **Traffic Div., Port of Los Angeles.** It consists of an alphabetical list of world ports served and reached by carriers operating in and through the Los Angeles Harbor area, a list of steamship lines, local agents, the areas served by them and the approximate sailing frequency of vessels.

Circle 61 on Card Facing Page 49

Bag-Handling Methods

Fulton Bag & Cotton Mills has prepared a poster which illustrates proper and improper methods of bag handling. Designed for use on bulletin boards and in other appropriate plant areas, the poster is illustrated, using a modern, simplified cartoon technique. The text is brief, to-the-point and easily understood.

Circle 62 on Card Facing page 49

Job Study

Details on how various savings were accomplished by the use of Towmotor equipment, are available in Certified Job Study No. 144, recently issued by the **Towmotor Corp.** On-the-job photographs of handling operations in the warehouse also are included.

Circle 63 on Card Facing Page 49

Case Histories

The Gaylord Container Corp., recently has published a four-page brochure showing six different types of bulk packaging. The case histories include specific benefits and economies which have resulted.

Circle 64 on Card Facing Page 49

Conveyor Catalog

A new, 12-page, bulk conveyor catalog, recently has been issued by the **Jervis B. Webb Co.**, describing bulk conveyors in materials handling operations. The illustrated catalog covers installations and drawings of head and tail ends, and cross sections.

Circle 65 on Card Facing Page 49

Warehouse Handling

Hyster Co. has issued Field Report No. 45, outlining materials handling practices in the public warehouse industry. The brochure tells how California Warehouse Co., Los Angeles, doubled its volume with a platform truck.

Circle 66 on Card Facing Page 49

BOOKS

Motor Transportation

"Your Future in Motor Transportation" is the title of a new book published by the Education Committee of the Regular Common Carrier Conference, ATA. It lists motor transportation potential, and details the future in all phases of motor carrier operation, including sales, traffic, over-the-road, terminals, insurance and safety, maintenance, purchasing, accounting, public relations, and personnel. **Education Committee, Regular Common Carrier Conference, ATA,** 1424 16th St., N. W., Washington 6, D. C. 22 pp, 30¢.

Interstate Commerce Law

"Interstate Commerce Law and Practice," a three-volume series authored by William J. Knorst, has been published by the College of Advanced Traffic. Completely revised, the series contains Notes and Citator, Key to Citation Reports, Glossary to Foreign Words and Phrases, and more than 7,000 citations. It is a companion set to the four-volume series, "Transportation and Traffic Management," also authored by Knorst and available from CAT. **College of Advanced Traffic,** 22 W. Madison St., Chicago 2, Ill. 1986 pp (combined), $7.50 per volume.

Automated Warehousing

A brochure on a newly developed automated warehousing system, has been published by **Walter Kidde Constructors, Inc.** The system is claimed to provide the advantages of bulk picking while retaining the desirable features of order picking. The method is facilitated through the use of an automated conveyor system directed by electronic controls, and is applicable to any industry or business which must warehouse and distribute case and broken lots of a wide variety of products.

Circle 67 on Card Facing Page 49

Power Gate Unit

A new, four-page folder, describing and illustrating the Model T-600, Speedlift Power Gate, has been released by **Daybrook Hydraulic Div., L. A. Young Spring & Wire Corp.** Operating facts should be of particular interest to light delivery operators. Complete specifications also are available.

Circle 68 on Card Facing Page 49

Dumping Attachment

A hydraulically operated attachment designed for automatic dumping of skid boxes or racks and used with its low-lift platform trucks, is detailed in a new truck engineering bulletin recently published by **The Elwell-Parker Electric Co.** The bulletin contains complete application, design and operational information, and photographs illustrate the model in various stages of operation.

Circle 69 on Card Facing Page 49

Solid Tire Tests

The Monarch Rubber Co. announces the publication and availability of a new multi-colored illustrated booklet that describes in detail a series of engineered tests for industrial solid tires. These tests determine comparative strength as well as resistance of standard lift truck tires to cutting, chipping and wear. Bulletin TD-200 illustrates the tires used in specific tests, including test equipment procedures. The development of a special rubber stock for tires also is described.

Circle 70 on Card Facing Page 49

Free Label Kit

Many different types of labels, suitable for industrial use, have been included in a new sample kit prepared by the **Allen Hollander Co.** Included are pressure-sensitive labels which require neither glue, moistening nor gumming, and heat-seal labels and tapes which are prepared for use with plastics, cellophanes and other hard-to-label surfaces.

Circle 71 on Card Facing Page 49

Handling Operations

Bulletin 552, entitled, "Methods and Ideas," published by the **Barrett-Cravens Co.**, illustrates 48 manhour and space-saving handling operations, plus various types of materials handling equipment at work, with brief descriptions of the pictured applications—some of which may be profitably employed in plant operations.

Circle 72 on Card Facing Page 49

Costs Reduction

Ways to help cut production costs and improve work scheduling with properly designed jigs, fixtures and gages, are explained in a new leaflet released by the **Small Business Administration.** The leaflet is No. 40 in the series of Technical Aids issued, and contains a selected bibliography for further reference.

Circle 73 on Card Facing Page 49

Tractor Shovels

The all-wheel drive, model 175-A, with a 2¼ cu yd capacity, and the smaller 1⅝ cu yd model 125-A, their design, construction and operation are completely described and illustrated in a new 12-page catalog No. 1250-P, offered by the **Clark Equipment Co.** Optional attachments also are included, as well as range charts giving dimensions on all major attachments.

Circle 74 on Card Facing Page 49

Storage Racks

The **American Metal Products Co.**, recently issued a catalog describing and illustrating various types of storage racks designed to meet practically every storage need. Erected without bolting or welding, the units include standard and adjustable pallet racks; skid racks; drum, barrel, tool, die, coil and tiering racks.

Circle 75 on Card Facing Page 49

Lifting Devices

A brochure entitled "Modern Lifting" has been released by **Globe Hoist Co.** This publication presents descriptive information, specifications and illustrations covering loading lifts, ramp eliminators, self-leveling ramps, production lifts, bridge lifts, paper roll lifts, industrial truck service lifts and electric-powered platform lifts.

Circle 76 on Card Facing Page 49

Truck Lease Plan

Complete facts on a unique guaranteed maintenance program for Buda fork lift truck leasing (including gasoline, diesel or LP models) are available in a six-page folder offered by **Lift Truck Service Co.** The plan provides an exclusive, one-source arrangement for leasing and full maintenance of one or more trucks, on a per hour operation cost fixed in advance.

Circle 77 on Card Facing Page 49

Wheels, Casters and Trucks

The Colson Corp. recently published three new catalogs covering its industrial products. One of the new catalogs covers several thousand different casters and wheels which Colson manufactures. Another catalog deals with Colson's line of industrial trucks and trailers, and the third catalog covers Colson's powered lifters, lift tables and lift trucks.

Circle 78 on Card Facing Page 49

Unit Load Principle

A 32-page publication of the **Edison Storage Battery Div. of Thomas A. Edison, Inc.**, has been extensively revised to include up-to-date illustrations of modern industrial trucks with the latest material-handling attachments. The publication is devoted to the unit-load principle, the power requirements of industrial trucks and the characteristics of Edison Nickel-Iron Alkaline Storage Batteries.

Circle 79 on Card Facing Page 49

Steel Shelving

A new, boltless steel shelving, erected without use of tools, is described in a four-page brochure recently released by **The Frick-Gallagher Mfg. Co.** Illustrating the three types of simple clips used for all installation, the booklet describes how the clips are installed quickly and easily by hand.

Circle 80 on Card Facing Page 49

Floor Cleaner

Bulletin No. 551, released by **Handling Devices Co., Inc.**, covers in detail the features and advantages of Floormobile for suction cleaning large floor areas.

Circle 81 on Card Facing Page 49

▶ For prompt service, use the postage-free postcard provided to secure FREE LITERATURE and NEW PRODUCT information described herein. All material FREE, unless otherwise noted.

Ball-Bearing Trolley

A 20-page catalog, No. 2536, illustrating and describing a new line (Series 500) of ball-bearing trolleys for overhead conveyors, has been released by the **Link-Belt Co.** Detailed data on the entire line, including applications, and description of the commonly used attachments are available.

Circle 82 on Card Facing Page 49

6,000-lb Capacity

A new idea in loading and unloading is described and illustrated in a four-page bulletin offered by **The Raymond Corp.** The new portable loading dock will elevate and lower 6,000-lb loads from ground level to 56½ in. high. A 72-in. wide by 84-in. long platform is hinged so that it folds for easy storage. A self-contained power unit operates the dock and a remote push-button control allows one man operation.

Circle 83 on Card Facing Page 49

Scoop Attachments

Lewis-Shepard Products, Inc., now has available a new circular, describing hydraulic and mechanical scoop attachments for fork trucks. The hydraulic, bulk-handling unit is used in operations requiring accurate measuring and batch weighing. The mechanical dump scoop is used for fast dumping operations involving bulk materials, small castings, etc.

Circle 84 on Card Facing Page 49

Industrial Wheel Brochure

Bronco Products Co. has made available a new brochure on industrial wheels. Along with illustrations of each type of wheel manufactured, there is descriptive literature explaining the variety of rubber treads.

Circle 85 on Card Facing Page 49

Bagging Scale

A six-page, two-color bulletin, offered by **Richardson Scale Co.**, describes and illustrates the new automatic bagging scale, Model E-50. This high-speed bagging unit has a normal capacity range of from five to 25 lb, or from 25 to 50 lb. It weighs and fills open-mouth paper or textile bags. Specifications, accessories and optional features also are outlined.

Circle 86 on Card Facing Page 49

LP-Gas Operation

A new, informative booklet which gives factual data regarding the cost of operating internal transportation equipment on LP-Gas, recently has been published by the **American Liquid Gas Corp.** The booklet gives complete information of tests made and results obtained after conversion of materials handling equipment to LP-Gas operation.

Circle 87 on Card Facing Page 49

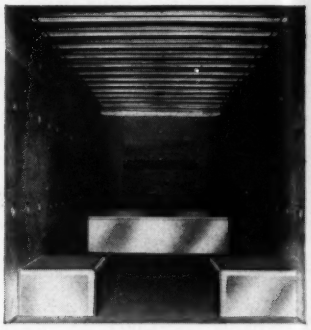
NEW TRAILMOBILE D-24

MOVER'S AND WAREHOUSEMAN'S VAN

- **New 24" Drop Frame**
- **More Cube**
- **Greater Strength**
- **Easier Loading**

NEW!! EXTRA HIGH, EXTRA WIDE SIDE DOORS FOR FASTER, EASIER LOADING! Rugged, lightweight door construction prevents sagging. Doors are securely hinged to side posts.

NEW!! FULL FRONT LOADING features 18" corner radius (A.T.A. recommended) and 8" bevel inside corners, with 75" of flat loading space across nose. Cargo stacks snug to front and sides . . . every inch counts for payload!



NEW!! EXTRA WIDE, EXTRA HIGH REAR DOOR OPENING is only 2¼" less than body height. Door opening is 89¾" . . . wider than ever before! Floor height is extra low (only 30⅞" at the rear on 9:00x20 tires) for easier loading. New design rear door frame removes obstructions that can cause damage to cargo.

Big and rugged, with 24" drop frame and plenty of "good looks" to boost *your* business! That's the entirely new Trailmobile D-24 Movers' and Warehousemans' Van. And it's loaded with exclusive, new design and construction features for longer life, higher cube, better cargo protection, new speed and ease in loading and unloading!

New 24" drop frame design allows greater body height and more cube for bigger payloads. Exclusive "V" strut side construction pares unnecessary deadweight without sacrificing strength. And maintenance costs are *low* with the new D-24 because it's "operator designed"—made to order for your specialized hauling needs!

Ask your Trailmobile representative to show you how the new Trailmobile D-24 can help you roll up *more payload profits*. Write, wire or phone today!

Only the D-24 has all these new features!

- **HEAVY-DUTY INSIDE RUB RAIL** joins struts at lower beltline, extends full length of trailer. Prevents damage to cargo, increases trailer strength. Bottom side panels are 18 gauge steel for extra ruggedness. In case of damage, panels can be replaced individually without having to replace the complete side.
- **SKY-LITE AIRSTREAM PLASTIC NOSECAP** in beautiful Trailmobile gold allows daylight to enter front of van for easier loading, unloading, cargo checking and cleaning.
- **THE SWING RADIUS YOU WANT!** Kingpin location is available in 2" increments from 26" to 36" as standard . . . giving you maximum cab clearance for a variety of tractors.
- **NEW TRAILMOBILE TRAILERS ARE ELECTRONICALLY LOAD-AND-ROAD TESTED** under the most rugged conditions possible. Your assurance of longer life and lower maintenance!
- **"NO-RIP" TIE CLEATS** provide a smooth inner loading surface, won't rip furniture pads, reduce damage claims.
- **SIDE DOOR FRAME EXTRUSIONS HAVE ROUNDED EDGES** for easier painting, lettering, or application of decals. Better display for your firm name!

TRAILMOBILE INC.

The Trend is to **TRAILMOBILE**

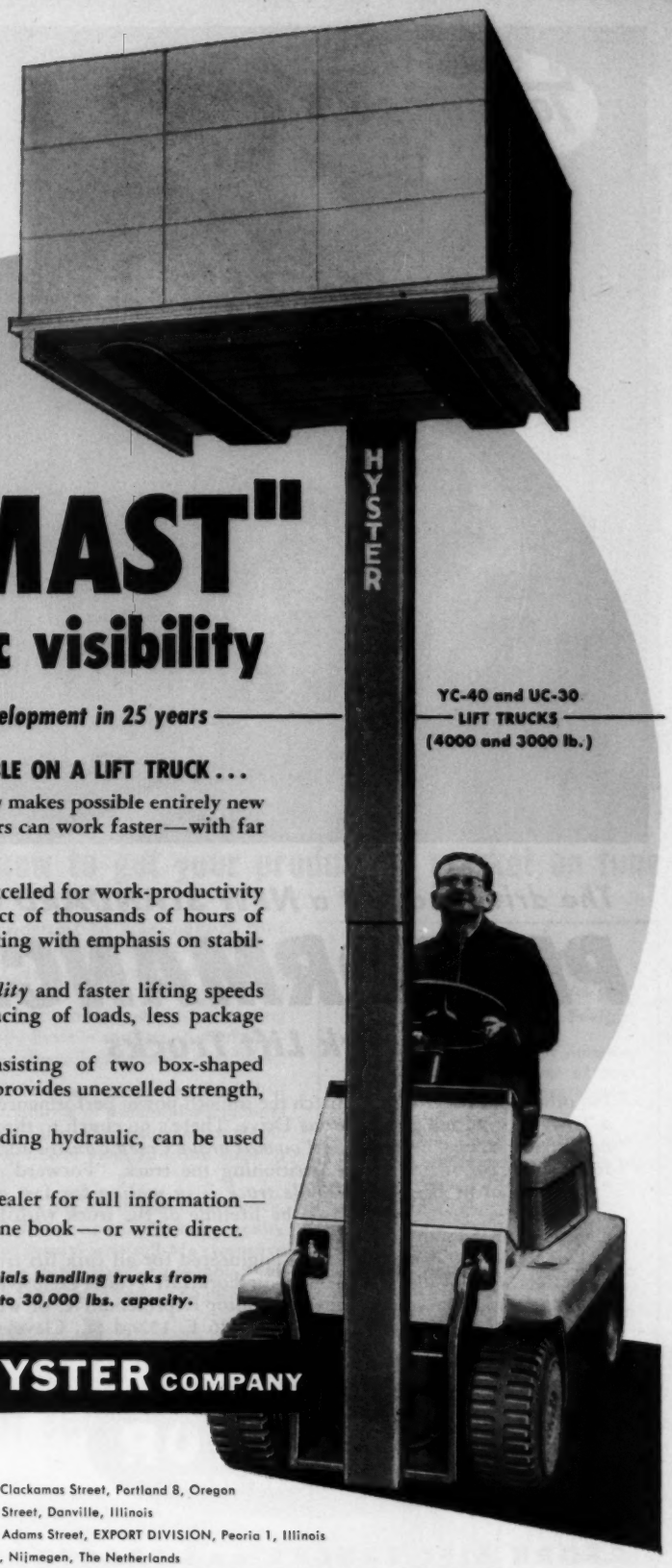
Cincinnati 9, Ohio • Berkeley 10, California

Friendly Sales and Service From Coast to Coast
In U. S. and Canada

Circle No. 13 on Card, Facing Page 49, for more information

the revolutionary NEW HYSTER "MONOMAST" with panoramic visibility

the greatest basic lift truck development in 25 years



YC-40 and UC-30
LIFT TRUCKS
(4000 and 3000 lb.)

OPERATOR VISIBILITY NEVER BEFORE POSSIBLE ON A LIFT TRUCK . . .

Exclusive "Monomast" *panoramic visibility* makes possible entirely new techniques in lift truck operation. Operators can work faster—with far greater safety.

SAFER, STRONGER, FASTER. "Monomast", unexcelled for work-productivity — five years in development — the product of thousands of hours of Hyster Proving Ground and actual job-testing with emphasis on stability, rigidity and strength.

Exclusive "Monomast" *panoramic visibility* and faster lifting speeds means faster approach, more accurate placing of loads, less package damage—*far more tons moved per hour.*

Unique "Monomast" construction, consisting of two box-shaped sections, one telescoping within the other, provides unexcelled strength, rigidity and safety.

Hyster® standard job-attachments, including hydraulic, can be used with the "Monomast".

SEE THE DIFFERENCE. Ask your Hyster Dealer for full information—he's listed in the yellow section of the phone book—or write direct.

Materials handling trucks from 1000 to 30,000 lbs. capacity.

HYSTER COMPANY

2940 N. E. Clackamas Street, Portland 8, Oregon
1040 Myers Street, Danville, Illinois
1840 North Adams Street, EXPORT DIVISION, Peoria 1, Illinois
Hyster N.V., Nijmegen, The Netherlands

FOUR FACTORIES: PORTLAND, OREGON; DANVILLE, ILLINOIS; PEORIA, ILLINOIS; NIJMEGEN, THE NETHERLANDS

"MONOMAST" trademark registration applied for.

ON DISPLAY
at your
HYSTER DEALER

Circle No. 14 on Card, Facing Page 49, for more information

The drive that set a ***NEW STANDARD*** *of*

PERFORMANCE

for Fork Lift Trucks

No other fork lift truck can match the smooth-power performance of a Towmotor with *TowmoTorque* Drive. There's no clutch to throw, no gears to shift. The exclusive *TowmoTorque Creep Control* allows full power for lifting while positioning the truck. "Forward" or "reverse" can be preselected *while truck is in motion* for fast getaway! And *TowmoTorque* lasts the lifetime of the truck with less maintenance than any other drive.

TowmoTorque is the only drive engineered for all fork lift truck operations. It is available in Towmotor Fork Lift Trucks exclusively. Get the facts from your nearby Towmotor Representative, or write TOWMOTOR CORPORATION, Div. 1908, 1226 E. 152nd St., Cleveland 10, Ohio.

TOWMOTOR
THE ONE-MAN-GANG®

FORK LIFT TRUCKS and TRACTORS
SINCE 1919

Manufactured Only By Towmotor Corporation — The Pioneer Maker Of Fork Lift Trucks

Circle No. 15 on Card, Facing Page 49, for more information

Batch Billing . .

(Continued from Page 36)

compared on the reproducer to be positive we did not drop any information during calculation. The two cards should contain exactly the same information except for inventory balance. During this operation, we also reproduce into the new inventory card control punches necessary for calculation of the next batch of orders.

The order cards are sorted to store number, department, and warehouse location. After inserting the proper store's invoice card, these cards are listed to produce a store invoice, selection media for the warehouse, and a copy for accounting purposes. During the listing of invoices, we summary punch an analysis card by class of merchandise (first two digits of the code) and a total invoice card for each store billed. These invoices are mailed each night to each warehouse where the order is selected and shipped to the stores the following day.

The class summary cards produced while invoicing are further summarized by class of merchandise and class of store each week with a total card for each class of store.

Invoice Cards

The invoice cards produced while invoicing are used weekly to register individual store charges. These cards, since they contain tonnage shipped figures, are used monthly to spread warehouse and transportation expense to individual stores.

Each week, buyers are furnished a listing of each item showing the following information: Opening inventory in units, units received, plus or minus inventory adjustment, units shipped to stores, unit cost, closing inventory, previous eight weeks average movement, number of weeks' supply on hand the beginning of the week and end of the week based on movement, and the dollar value extension of closing inventory.

We also supply the buying department with a report by class of merchandise showing in dollars, opening inventory, receipts, store shipments, and ending inventory. This is used by the buyers to assist in controlling the budget established for each class of merchandise.

In addition, we supply the buying department daily with a listing of items in each warehouse, when stock on hand is less than the minimum balance.

We count warehouse stock in each warehouse every four months and adjust the files to physical counts. During the week of inventory we move up our order schedule from stores, but maintain the same delivery schedule

to allow our warehouses to move ahead in order to be closed one day.

We always count inventory on the last Friday of the accounting period; therefore, on Wednesday of that week a survey crew takes a listing furnished by the accounting machine department in the warehouse floor code sequence and writes in the warehouse section where each item is located. The warehouses are broken down into 40 sections for inventory taking. From this listing the accounting machine department prepares one card for each item located in each warehouse section.

These cards are prepunched and interpreted as to item code, description, pack and size, warehouse floor code, and warehouse section. We use the one card inventory system with two counts. Cards for each section are counted to control all cards issued.

Normally, on Thursday afternoon of the inventory week, the warehouse crew places out cards in each section on the proper pallet of merchandise, verifying the card with the merchandise as they put them out.

Friday morning crews of four are assigned sections to inventory. These crews pair off in counting the stock, starting at opposite ends of the section.

Upon completing a section, the cards are returned to the accounting machine department where they are counted on the sorter to account for all cards. The accounting machine department punches and verifies the physical count into each warehouse inventory card. After all cards have been returned to the accounting machine department by the inventory crews and counts punched into the cards, the cards are sorted to item code and collated against the perpetual inventory deck (master inventory file).

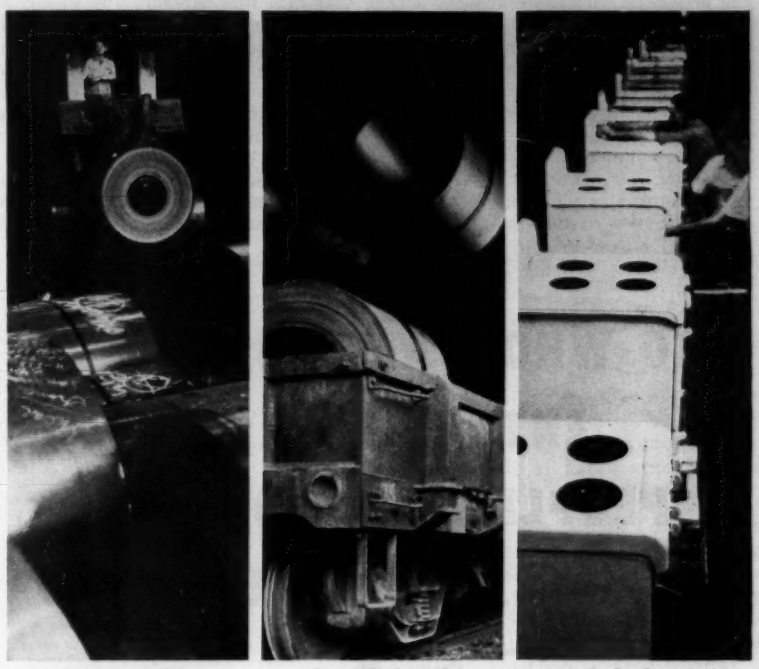
A listing is then made on the accounting machine showing code number, description, pack and size, perpetual inventory, warehouse section and physical inventory, perpetual over physical, physical over perpetual.

The items for recounting are ready for the warehouse on Saturday morning. While the warehouse is making recounts, the accounting machine department punches a plus or minus card from the listing, perpetual over physical becoming a minus and physical over perpetual a plus. Minus adjustments are processed against the master inventory file the same as store order cards. Plus adjustments are processed against the same deck, the same as receipts are processed.

Having completed all adjustments to the inventory master file, this complete file is reproduced and processed through the calculator to extend cost times inventory and to punch dollar extension.•

(Resume Reading on Page 37)

Wabash/Road of the men who move steel



from mill via Wabash to fabricator

or, how to get your product to market on time

It's important to steelmakers that Wabash connects with 64 major railroads at 118 interchange points. Wabash serves the Heart of America . . . and serves it fast and thoroughly, permitting unusually flexible routing of steel shipments to, through and from the Midwest.

Add Wabash's reputation for "kid glove" handling of difficult assignments —and you have the basic reasons traffic men who move steel so often turn to Wabash.

Whatever kind of freight you move, you'll find Wabash equally able, equally equipped to serve you well. May we prove it with the facts? They're available from Wabash representatives in 45 cities.

SHIPPERS!

Look at the advantages of Wabash "HOT SHOT" Freight

1. "Bridges" the Heart of America, the only railroad member of both the Eastern and Western carrier groups.
2. Connections with 64 major railroads. Coordinated schedules at 118 interchange points.
3. All Diesel-powered trains.
4. Superior car service to shippers.
5. Fast "HOT SHOT" schedules to and through the major Gateway terminals or by-passing them altogether—as you wish.
6. Modern yards designed for faster assembly of trains and more orderly traffic flow.

Wabash

"HOT SHOT" FREIGHT

P. A. SPIEGELBERG,
Freight Traffic Mgr., St. Louis 1, Mo.

Does Private Carriage . . .

(Continued from Page 33)

the private carrier can transport outbound—even if the terms of sale are FOB origin point and seller makes a separate charge to the purchaser for delivery service.[4]

3. Merchandise not owned by the private carrier, but entrusted to him for some commercial purpose, such as processing or packaging. Display racks, returnable shipping containers which belong to customers or suppliers fall into this category. However, in handling goods of this sort it is particularly important that the transportation be merely incidental to the actual processing done. If transport is a primary or major part of the entire transaction, it may become carriage for hire.[5]

When improved service is the paramount reason for operating trucks, a cost analysis may not be needed. Once we know the volume and destinations of priority freight to be handled on our own vehicles, we can work out the approximate number of trucks needed, and schedules for them. Then equipment is purchased, drivers are hired and actual operation can begin.

In most cases, however, cost is an important factor—in fact, cost reduction may be the principal objective. Where this is the case, we must take a careful and impartial comparison of present versus proposed transportation expense.

To do this successfully, we obtain an average gross weight for each type of available freight in a representative period. Many classes of freight fluctuate from one month or week to another, but a conservative average volume is essential if our cost computations are to be reliable.

At this stage of the analysis, it may be helpful to prepare a map or diagram, showing approximate weekly inbound and outbound volumes plotted at their respective location. Even if this shows a crazy-quilt pattern of tonnage scattered in many directions from the base point, it is likely to give important clues to areas for further examination.

Freight movements in combinations are particularly well suited to economical inter-city truck runs. We should give special attention to directions or territories where we find any of the following circumstances:

1. A substantial movement, more or less equal in volume in both directions, between base point and a particular territory at any distance up to several hundred miles.

2. Volume movement in one direction (now being hauled in carloads or truckloads), and partial return loads. Even if the return hauls are varied and irregular, a full and established movement one way may be the backbone of a productive private carrier service.

3. Movement of ltl lots (at ltl or similar rates) between base point and several different locations which could be served with the desired frequency by one company truck on a "circular" or "multiple-leg" route.

Let us assume that we find a territory in which our business shows one of the above sets of conditions. Next we estimate how much of the available volume can be handled by a company vehicle or vehicles. At this point, a

[4] Lenoir Chair Co., Contract Carrier Application, 51 M.C.C. 65. Findings of I.C.C. affirmed by Supreme Court in Brooks v. U.S., cited in Note 3.

[5] In Benjamin Butkus Contract Carrier Application, Docket MC-109798, decided May 18, 1950 by Division 5 (not printed), it was held that the truck operations of a company which processes a cleaning compound owned by another company, and delivers it by truck to the customers of the owner, constitute transportation for hire as a "related or secondary enterprise conducted for the purpose to profit from the transportation performed." This casts some doubt as to the extent to which a processor can go, in handling the goods of another, without becoming a for-hire carrier and requiring interstate operating authority.

TO WHOM ARE YOU ENTRUSTING YOUR PEOPLE'S PRECIOUS POSSESSIONS?

WHEN YOU MOVE THEM LONG-DISTANCE

▶ Not to just any Tom, Dick or Harry. That goes without saying. Of course the equipment must be good, the movers competent, the service complete. But above all the mover must be responsible . . . stand back of his service . . . and have the resources to back his stand. If you add all these together, plus many other important and significant advantages, there is at least one answer you may be sure of! That is Mayflower Long-Distance Moving Service . . . brought to you by the first carrier to receive nation-wide operating rights from the I. C. C. . . . the world's largest owner of moving equipment . . . America's Finest for 26 years!

AERO MAYFLOWER TRANSIT COMPANY, INC. • INDIANAPOLIS

Mayflower's organization of selected warehouse agents provides on-the-spot representation at the most points in the United States and Canada. Your local Mayflower agent is listed in the classified section of your telephone directory.

AERO Mayflower

America's Finest

NATION-WIDE FURNITURE MOVERS

whole series of variables comes into play—the capacity of the proposed truck(s), highway distance, terrain, road and traffic conditions, loading and unloading requirements. The maximum working time of drivers in interstate operation also may be a limiting factor.

None of these variables can be applied in a scientific formula. However, giving each item weight in a general way, we make a preliminary estimate of what capacity vehicle may be used, how much it can haul in a week, and a rough time schedule—such as shown in Table 1.

From this, we can find the *present* transportation cost of this volume by applying the freight rates now being paid. This is the number of dollars we now pay out to others for hauling what we may perhaps transport for ourselves. See Part A of Table 2.

The final step in the cost comparison is to estimate what total operating costs will be, on the size and type vehicle which we have tentatively selected. Expense will depend on vehicle capacity, and on local conditions. It also may vary according to the plan for obtaining vehicles which we choose from among the following possibilities:

1. Outright ownership. This means making a capital expenditure of several thousand dollars, and assuming ourselves most of the risks of fluctuating operational costs.

2. Owning vehicles but operating them under a "Guaranteed Maintenance Contract." In the heavy truck field, this recent development is offered to selected customers by at least two manufacturers. It provides for maintenance and repair of new vehicles by the manufacturer's factory branch or dealer, on a contract basis.

3. Leasing vehicles, without drivers, from a truck-leasing organization.

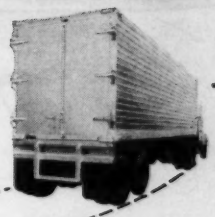
Much expert assistance is available to help us obtain cost data under these plans. Truck and trailer manufacturers and dealers gladly provide purchase prices and operating expense estimates. These sources also can give information on guaranteed maintenance programs. Companies in the truck-leasing industry are ready to offer quotations and suggestions.

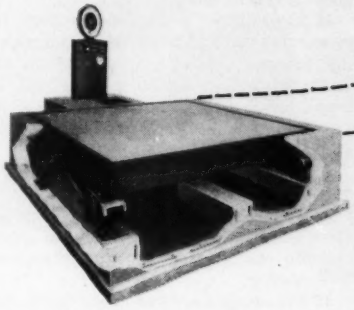
An additional source, which we should not overlook, is the private carrier industry itself. Within the traffic fraternity there is a traditional willingness to exchange information, so long as no trade secrets are involved. There undoubtedly are other manufacturers and distributors in our vicinity who operate trucks of their own. Their experiences, uncolored by special interests, may be a valuable yardstick to guide and verify our cost estimates.

In figuring prospective expenses under the vehicle plan we choose, there again is no "magic formula" to provide exact answers. We estimate

(*Please Turn Page*)

CHECK ON NEW TOLEDO® HI-WEIGH TRUCK SCALES





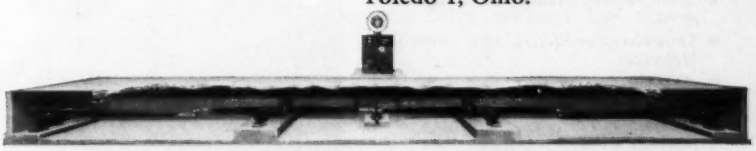
KNOW YOUR LOAD!

Today, doubtful truck weights are more costly than ever . . . affecting your dealings with customers, with vendors, with highway enforcement officials.

New TOLEDO Hi-Weigh Truck Scales are engineered for today's heavy duty needs . . . choice of two-section, four-section or axle load in full range of models. Long-life accuracy assured by Toledo double pendulum mechanism . . . self-gauging replaceable pivots . . . parallel link suspension bearings . . . easy-to-operate unit weights . . . automatic indication with the famous Toledo dial. Send for literature, form 2417-A. Toledo Scale Company, Toledo 1, Ohio.

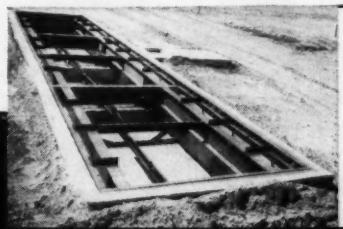
HI-WEIGH AXLE LOAD SCALES

These Toledos help you check load distribution as well as total weight. Economical shallow pit installation. Choice of 20 ton capacity with 8′ x 10′ platform or 30 ton with 10′ x 10′ platform. Toledo dial offers quick, accurate weighing . . . outstanding dependability.



60 TON—4 SECTION—60 FT.
TOLEDO HI-WEIGH TRUCK SCALES

These BIG four-section scales are built to weigh the heaviest and largest highway vehicles. In them you get the capacities and platform lengths required to meet needs today . . . and tomorrow. They are designed for economy of installation and long-life durability in heavy duty use. All Toledo Hi-Weigh Scales available with Toledo Printweigh for recording weights on tickets, strips, or sheets.



NEW ECONOMY IN INSTALLATION

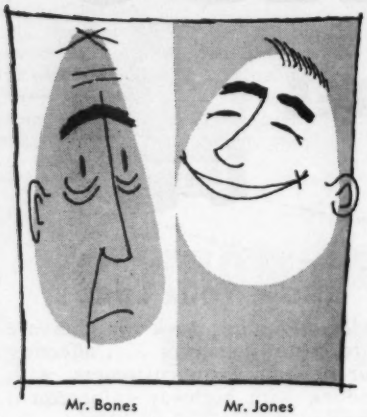
Toledo engineering has integrated lever, weighbridge, and pit design to achieve high strength combined with economical, long-life installation.

SERVICE Factory-Trained 200 Cities

TOLEDO
Headquarters for SCALES

Circle No. 16 on Card, Facing Page 49, for more information

WHICH TRAFFIC MANAGER NEEDS THE ASPIRIN?



Mr. Bones Mr. Jones

Mr. Jones has no headaches—he knows San Francisco Warehouse will handle his storage and distribution problems on the West Coast! Save on your aspirin bills—contact us or our representatives today.

- *50 years as Pacemaker of Pacific Coast Warehouses*
- *Over 500,000 square feet storage area*
- *Sprinklered or Electric Fire Detectors*
- *ADT Supervised*
- *General Merchandise, U.S. Customs and Internal Revenue Bonded Storage*
- *Office accommodations and Telephone Service*
- *Pool Car Distribution*
- *Permitted City Carrier*
- *Bonded Draymen*
- *Private RR Sidings*
- *Reciprocal Switching*

SAN FRANCISCO WAREHOUSE CO.

MAIN OFFICE:
605 Third Street, San Francisco 7, Calif.
Telephone: SUtter 1-3461

NEW YORK REPRESENTATIVE:
Distribution Service, Inc., 2 Broadway
Telephone: Bowling Green 9-0986

CHICAGO REPRESENTATIVE:
Distribution Service, Inc., 251 East Grand Avenue Telephone: SUperior 7-7180

Does Private . . .

(Continued from Preceding Page)

as accurately as possible, and include in our figures a reasonable allowance for unforeseen items.

At this point, all the steps we have taken produce a result. Present and proposed costs on a segment of our transportation movements stand side by side (as in Table 2) and are compared. Does the proposed cost indicate a reduction? If not, our project is at a dead end, or should be refigured on a different basis.

If there is a "proposed" saving, is it substantial? To justify undertaking private carriage, it should be at least $3,000 or $4,000 a year for a large truck or tractor-trailer, or else there should be other worth-while advantages gained.

Is the comparison realistic, with facts which can stand close examination by others in the business? Miscalculations or uncertainties in cost can too easily offset a small prospective saving.

If the study survives these tests, we will want to put it into a little written report. This form will vary, according to individual company policies. But, regardless of form, to set up the summary is invaluable. It brings our own thinking to clear conclusions. It records sound reasons for expending the cash and making the commitments needed to start truck operations. It gives brief answers to the what, where, how and why of our proposal.

Even after the study is made and the project is approved, matters still move slowly. Vehicles must be obtained and a driver or drivers hired. A logical channel of supervision, dovetailed with other traffic functions, has to be set up.

After trucks are rolling, they must be operated right and maintained right. Schedules should be rechecked to make the best use of the vehicles—which are too expensive these days to be left idle or only partially used for very long. Someone really interested in the services of these trucks must "father" the operation.

Thus, to the question, "Shall we operate our own transport trucks?" there is no one quick answer. Some businesses find that truck responsibility brings new headaches and little advantage. Others find that their own trucks can be of real, growing value; offering stepped-up service and cuts in distribution cost which are otherwise out of reach.

A little cost analysis may show some startling things about that. Perhaps we should begin one today. •

(Resume Reading on Page 34)

WISCONSIN-POWERED

LAD-E-VATOR hoist Speeds Up MATERIALS HANDLING ...CUTS COSTS!

This ingeniously designed extension hoist lifts materials up as high as 80 ft. in one minute, according to the builder, Campbell Equipment Co., Chicago, Ill. Provides easy, one man, one hand control and delivers all kinds of loose and bulk materials directly to the working area for automatic dumping or removal by workmen. Designed for use on construction or storage jobs, it eliminates dangerous swinging buckets and risky reaching operations. Can be used with platform, wheelbarrow or scoop, carrying up to 1,000 lbs. per load.

This is another typical assignment for the dependable foolproof Lugging Power of Wisconsin Heavy-Duty AIR-COOLED Engines . . . power that Fits the Job and the Equipment, delivering maximum on-the-job service with minimum servicing.

You can't do better than to specify "Wisconsin Engine Power" for your construction equipment.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

Circle No. 17 on Card, Facing Page 49, for more information

World's . . .

(Continued from Page 29)

records the number of fruits by weight. The counter clerk records the totals on the growers' tally sheets.

The seventh step in the operation is the stamper. A special lacquer sprayed through a flexible metal stencil, stamps "Calavo" or other brand names on the avocados.

The eighth step in the process is the sizer. The avocados are placed on moving conveyors by "cuppers." The fruit proceeds along a line until it reaches a point where it counterbalances its sizing-weight and then rolls to a belt conveyor and into packing tubs. As each piece of fruit trips the counterweight, it is recorded in the counter room.

The ninth step in the packing house is the grading. What is inside an avocado counts—rather than its outside appearance. They are graded for quality first. Blemished fruits are sorted out and culls are removed.

The 10th step is the inspection, lidding and stacking of the avocado. About 12,000 packed flats can be run through the lidding machines in a capacity day. Before lidding, all flats are inspected and weight-checked. After the lidding has been done, the boxes are segregated by size and quality.

The eleventh important step is the storage. The coolers are kept at an air temperature of 40 deg F, and in a condition of humidity by means of a forced air method. The cooler rooms are used to pre-cool avocados before shipment to local and Coast markets. Avocados are semi-perishable and cannot be stored for an extended or indefinite time.

The twelfth move in the process is the carloading and shipping. Market shipments move by refrigerated truck or rail to 35 produce centers for distribution nationally. Railroad cars are loaded directly from the packing line. The fruit is pre-cooled after loading in a car. The pre-cooling units were developed by Calavo specifically for avocado requirements.

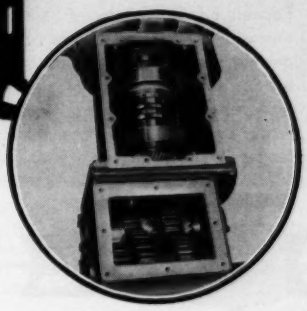
Cars in transit are checked daily through the traffic department. Protective service may call for icing or removing of ice or installation of of heaters in transit.

Box materials are received in carloads and stored to be made up as needed to save space. End pieces are imprinted with the brand name such as Calavo, Bueno and El Dorado. Made-up flats for packing fruit are conveyed to the mezzanine floor for dispatch to packing house lines during the day as required.•

(Resume Reading on Page 30)

MOBIL-MATIC Drive
. . . GIVES YOU

- Tonnage Handled Per Hour
- On the Job Hours Per Year
- Real Return Per Materials Handling Dollar



MOBIL-MATIC Drive works harder, longer and more economically because of its advanced features.

1. **MOBIL-MATIC** utilizes a patented directional control mechanism . . . less complicated, more efficient than the old-style, costly friction clutch.

2. **MOBIL-MATIC** provides all the desirable operating characteristics of an automatic drive without the use of expensive, complex mechanisms.

3. **MOBIL-MATIC** has an exclusive and simple adjustment which provides continuous maximum efficiency without replacement of high-priced components.

4. **MOBIL-MATIC** with fluid coupling guarantees smooth starts . . . positive power . . . easy driver control . . . quick turns without gearshifting . . . maximum safety . . . and reduced maintenance of engine, brakes and tires.

*Mobil-Matic is just one of the outstanding new features that make Mobilift a "must" in materials handling.

Your Lamson Mobilift dealer can show you how Mobil-Matic drive can slash your material handling costs.

MAIL THIS COUPON TODAY.

LAMSON MOBILIFT CORP.
5308 Lamson Street, Syracuse 1, N. Y.
Please send me complete information on ____ 3000 lb. capacity unit ____ 4000 lb. capacity unit ____ all Mobilift units to:
NAME_____
COMPANY_____
ADDRESS_____
CITY_____ ZONE_____ STATE_____

LAMSON
MOBILIFT
MOBILIFT CORP.
Home Office
Portland, Ore.
Offices in principal cities

Circle No. 18 on Card, Facing Page 49, for more information

Circle No. 19 on Card, Facing Page 49, for more information

Farquhar

POWER-BELT AND GRAVITY CONVEYORS

materials handling CONVEYORS

Farquhar fully integrated bulk or packaged materials handling systems . . . portable or permanent . . . effect direct savings within production operations, as well as between operations. Get the facts about Farquhar Power-Belt and Gravity Conveyors today. See for yourself how you can cut your handling costs.

Write for our "Owners Report" or Bulletin No. 400 covering Farquhar Package Handling Conveyors.

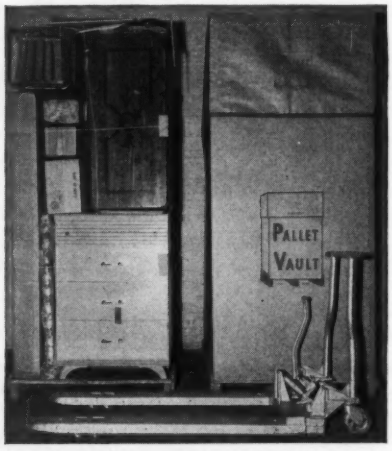
OLIVER Farquhar CONVEYORS

A. B. FARQUHAR DIVISION
THE OLIVER CORPORATION

Conveyor Dept. E-56
York, Pa.

618 W. Elm St.
Chicago 10, Ill.

Go Modern With Pallet Vault for $500.00



For as little as $500.00 you can have the most modern hydraulic jack lift, plus a supply of hard wood pallets and 24 Pallet Vault covers. Pallet Vault saves 8 handlings, 50% of aisle space. Eliminates wrapping, pilferage, access time, plus increased profits for your warehouse.

Write for descriptive folder and prices to

General Van and Storage Co.
4908 Delmar St. Louis 8, Mo.

Circle No. 20 on Card, Facing Page 49, for more information

Rough . . .

(Continued from Page 27)

causes of damage to his company's products are the result of impact and switch handling, and shifting of loads. He has partly overcome his problems by using excelsior pads for protection within the cartons, and by special door and floor covering in the freight cars. He also uses dividers between sizes and lots within cartons, and insists on careful loading practices. Finally, he keeps close tabs with rail and truck carriers on his shipments.

H. Masoni, TM, Capital Manufacturing and Supply Co., Columbus, Ohio, had a combination of problems caused by rough handling by carriers and improper packing. Improper packing was the result of partially filling the cartons and the use of inadequate packing material. These problems were partially overcome by the use of better packing and stronger cartons to resist rough handling, by filling cartons to visible capacity, and by the use of steel strapping.

G. M. Swanson, TM, All Steel Equipment, Inc., Aurora, Ill., attributed most damage to dropping, rough handling and improper loading. To overcome the effects of dropping, he is employing better packaging methods. A printed warning on the package has helped in the problem of rough handling. In the matter of improper loading, he has written letters of explanation to carriers pointing out causes for damage. His requests for proper loading methods have produced some satisfactory results.

Shifting of lading, improper leveling-off of stop cars, and doorway damage were the three principal causes of damage experienced by C. E. Edin, TM, Pacific American Fisheries, Inc., Bellingham, Wash. He has partly solved those problems by use of "DF" or compartmentizer cars, better instructions to stop-off points, and the use of adequate doorway protection.

Damage has been only the second of the three principal causes experienced by Hyman Cohen, GTM, Barclay Home Products, Inc., Cohoes, N. Y. The first and most serious problem has been the outright loss of goods in transit; pilferage was third greatest.

Cohen has indicated that he has completely licked his problems at present by demanding a proper receipt of merchandise by the carrier in the case of lost merchandise, and putting the pressure on carriers to take proper action against pilferage. In the matter of damage to merchandise, the problem has been completely solved by the use of proper containers and his insistence that they carry only that for which they have been

Majority Keep Records

Actually, these interesting data are a by-product of the basic objectives of this survey; namely, an effort to determine to what extent the industrial traffic managers are keeping OS&D Records. (See "Painless OS&D?" Page 7, March, 1955, issue.)

It is interesting to note that only 63.2 per cent of all who participated in this survey report that they kept all records of OS&D claims. However, if reports by the manufacturing industry only—the industrial traffic managers — are considered, the percentage drops to 54.5.

Of the overall remainder, 26.3 per cent keep records only of major damage complaints, and 10.5 per cent do not keep any such records. Separating the industrial traffic managers from the overall picture, 36.4 per cent keep records of only major damage claims, and 9.1 per cent do not keep any records.

In answer to question relating to how damaged goods claims are handled, 13.3 per cent of all respondents request that all damaged goods be returned, 33.3 per cent request only major items be returned. The majority, 46.7 per cent, send their own representatives to inspect the damage and report the extent and cause; 6.7 per cent ask their insurance representatives to investigate and report.

Compared with this, only 10 per cent of industrial traffic managers request return of all damaged goods; 40 per cent request only the return of major items damaged. Because a preponderance of the 40 per cent are manufacturers of various types of metal products, it is to be assumed that the damaged goods are not completely destroyed and are salvageable.

This assumption is borne out by such statements as, "if possible repairs made at destination." Other comments by industrial traffic managers indicate damage claims are handled in the conventional manner; namely, "We file claim with the shipper"; or "Have customer report to carrier and claim is filed."

One paper products manufacturer sets a limit of damage as a deciding factor whether or not his company or the carrier shall handle the claim. In this case, if the damage covers more than 10 cases, the manufacturer's representative is sent to investigate the damaged shipment. If the damage is under 10 cases the consumer is advised to reject the shipment to the carrier.●

(Resume Reading on Page 28)

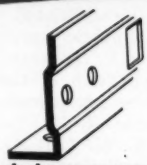
Traffic Club of Houston Elects Officers

Newly installed officers and directors recently elected by the Traffic Club of Houston include, left to right: Joe Spear, aftm, Southern Pacific Lines, 2nd vice president; A. J. Husmann, tm, Kirby Lumber Co., retiring president; A. L. Shine, ga, Frisco Lines, president; and Walter L. Peter, atm, Trinity Portland Cement Div., General Portland Cement Co.

BORROUGHS
*UNITIZED flexi
STEEL SHELVING

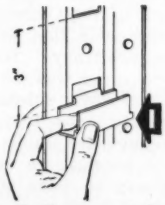
Here's "value-plus" in modern shelving

No other shelving can be erected as speedily as Borroughs Unitized flexi Steel Shelving. No other shelving offers quicker shelf adjustment. Each individual unit is complete in itself . . . no part depends on unit next to it . . . any unit or shelf can be moved independently. Borroughs Shelving is rugged . . its heavy gauge rolled shaped-post gives extra strength and greater rigidity. Borroughs Shelving is more than posts and shelves . . . it is engineered shelving—built to last. Whether your storage requirements specify open, closed, bin-type or door units, you can bank on Borroughs for dependable, speedy erection, and economy.

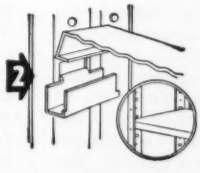


Borroughs heavy gauge rolled shaped-post for open shelving gives extra strength.

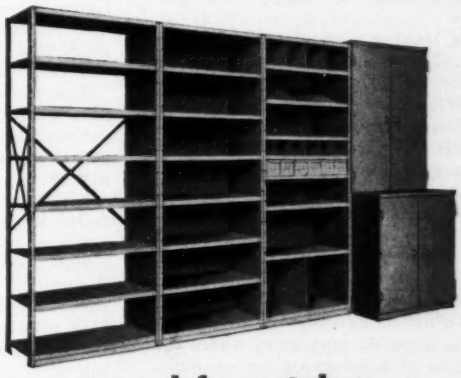
Borroughs 1-piece closed sides for closed shelving . . saves erection time.



Insert shelf support bracket . . no fumbling with studs, bolts, nuts or lock washers.



Tilt shelf into support bracket . . and shelf is ready for loading.



send for catalog

BORROUGHS MANUFACTURING COMPANY

A Subsidiary of The American Metal Products Company of Detroit

3002 NORTH BURDICK amp KALAMAZOO, MICHIGAN

Circle No. 21 on Card, Facing Page 49, for more information

Within the LAW

By Leo T. Parker Legal Consultant, Distribution Age

WAREHOUSING

When determining if an employe has authority to bind his employer, follow general rules.

Generally speaking, when confronted with the legal question whether an employe had authority to bind his employer, the court will refer to the general rules of law. One of these rules seeks to protect employers against the wrongful assumptions of the authority of employes and agents. To accomplish this purpose the courts give special weight to the doctrine that an employer has the right to extend or restrict the powers of his ordinary agent, as his judgments dictate.

The other rule seeks to protect the public against losses due to the appearance or mere assumption of power in an agent and, therefore, emphasizes the maxim that where one of two persons, both free from a fraudulent motive, must suffer loss in consequence of the act of one of them he whose innocent act entailed the loss must bear it. This latter principle or rule lies at the root of most of the present day higher court decisions.

In a leading higher court case (90 S. W. 742) the court explained the liability of a manufacturer for the acts of his salesman, as follows:

"Where a man has placed an agent in such a position that a person of ordinary prudence, conversant with the usages of business and the nature of the particular business, is let to believe the agent has a certain authority and, without negligence deals with him on the assumption, the employer is estopped to repudiate the agent's act of agreement."

This situation may arise where the employer of a salesman, for example, supplies the salesman with a letter or contract indicating that the salesman has authority to enter into binding contracts. Another situation, having the same legal effect, is where in the past the salesman's employer customarily accepted and approved all contracts made by the salesman and shipped the merchandise without acknowledging the orders.

TRANSPORTATION

Recently the higher courts in different localities rendered several unusual and most important decisions, knowledge of which will assist readers to avoid future heavy damage allowances. Obviously, readers and their lawyers may advantageously cite and use the hereinafter new decisions to win unavoidable law suits.

All rights forfeited under revoked certificate of convenience and necessity

According to a late higher court decision all rights under a certificate of convenience and necessity are forfeited when such certificate is revoked for failure to pay taxes.

For example, in T—— W—— & T—— Co., Inc. v. A—— T——, Inc. 271 Pac. (2d) 477, the testimony showed facts, as follows: One R—— was doing business as A—— T——. R—— failed to pay his taxes and the Commission revoked his certificate of convenience and necessity. Later R—— paid the overdue taxes, and satisfied the Commission which reinstated his certificate of convenience and necessity.

The T—— W—— & T—— Co., Inc. filed a suit contending that the reinstatement is invalid. The higher court agreed with this contention, saying:

"It is our view that when R—— failed to pay his taxes and the Commission revoked his certificate all rights thereunder died. To revoke is to annul or make void. To permit the Commission to revive a void certificate at any time it deems advisable would defeat the purpose and meaning of the statute requiring revocation. It would give it the effect of requiring only suspension for such length of time as the Commission might of its own motion decide. The order which attempts to reinstate the certificate shows on its face that R—— had since paid his taxes. This, however, avails him nothing. Being in default, the Commission was obliged to terminate his license and having done so, no rebirth is possible."

This court explained further that the Commission's jurisdiction is limited to those powers given it by the Constitutttion and statutes of the state. Also, that R—— cannot have a new certificate of convenience and necessity unless he follows the same procedure and method of securing a certificate of convenience and necessity to operate upon the highways of the state as is required of new carriers.

Can the courts reverse a commission order granting a carrier operating authority?

Generally speaking, the courts will not reverse an order granting a carrier authority to transport merchandise over specified routes or area. However, recently a higher court reversed a commission's order granting a common carrier authority to transport chemicals, liquid chemicals, and chemical products generally within state.

The higher courts held that evidence was insufficient to show a public necessity for the additional service granted, or that public convenience would be promoted by the granting of the carrier's application, or that reasonable service was not presently being rendered. See R—— T—— v. T—— Co., 269 S. W. (2d) 472. In reversing the commission's order, the higher court said:

"We recognize that the court cannot substitute its judgment for that of the Commission unless it be shown that the judgment of the Commission is without foundation in fact, or was unreasonable or arbitrary. Having concluded that the order was not reasonably supported by substantial evidence, and failure to set forth full and complete findings, the public need for the proposed service, we do not believe it necessary to pass on the other points.

"We have carefully considered all of the testimony and we do not find

(*Please Turn to Page* 94)

Warehouse SPOTLIGHT

Men in the Spotlight

Noble W. Jones—named head of the Industrial Packaging Div., Bekins Van & Storage Co., Los Angeles, Calif.

Frank E. Kearney, J. Leo Cooke Warehouse Co.—elected president, Newark, N. J., Chapter of DNA.

Vincent F. Caputo—named staff director, Material Management Div., and acting director, Office of Storage, Distribution and Disposal, Office of Ass't Sect. of Defense, Washington.

Vernon Williams — executive vice president, The Cleveland Stevedore Co., Cleveland, O., recently passed away.

W. **L. Sneltjes**—named director of sales; **Harold S. Bechert**—appointed manager, high value products div.; and **Richard W. Freeman**—named manager—sales administration, North American Van Lines, Inc., Fort Wayne, Ind.

—DA—

A truck safety program put in effect by Bekins Van & Storage Co., has resulted in a new safety record for the company. The firm, whose drivers logged a total of 5,315,495 miles, reported only 48 traffic accidents last year.

—DA—

1955 MCA Annual Assembly

The annual assembly of the Movers Conference of America will be held at the Mayflower Hotel, Washington, D. C., August 7-9. The convention program will include many prominent speakers as well as a varied activities schedule.

Congressman William Ayres of Ohio, Earl B. Smith, director of transportation and communications, and Jack Aspinwall, Jr., president, NFWA, will be among the featured speakers. Also included will be several members of the ICC.

Panels and special papers will be presented by members of the industry describing the various fields of work of the conference, and fields yet to be entered.

—DA—

Obituaries

Kenneth Pouch—director of Pouch Terminals, Clifton, Staten Island, N. Y., recently died in Staten Island Hospital.

Lawrence A. Naylor, chairman of the board, Monumental Storage & Carpet Cleaning Co., recently died in Baltimore, Md.

Wiggin Terminals, Inc., Boston, Mass., has become affiliated with the American Chain of Warehouses, Inc.

—DA—

NFWA Operating Conference

The NFWA fourth annual operating conferences will be held at the Hotel Shoreland, Chicago, Sept. 22-24. Subjects discussed will include: Treatment of Depreciation Expense, Storage Handling Improvements; Untapped Sources of Storage Revenue; Operating Profitably in Local Moving; Fire Prevention and Safety; Office, record Storage innovations; and Pitfalls in Government business, etc.

—DA—

New address of Affiliated Warehouse Companies is 105 West Madison St., Chicago, 2. Phone: STate 2-5180.

—DA—

Minnesota-Northwest Holds Annual Election

The Minnesota-Northwest Warehousemen's Assn., recently held its 45th annual meeting at the Nicollet Hotel, Minneapolis.

Highlight of the business sessions was the election of the following officers for the coming year: George W. DuBois, president; William D. Dwyer, vice president; William B. Carlson, secretary; and Lou H. Lackore, treasurer.

Warehouse Expansion

Northwestern Transfer Co. has been selected as Portland, Oregon, pool car distributors for **Empire Household Shipping Co., Inc.**, of Chicago.

Bekins-Las Vegas recently opened for business through the newly organized **Bekins' Nevada Corp.** Harry J. Brankey is manager.

U. S. Cold Storage Corp., recently opened a new $1½ million plant in Fort Worth, Texas.

Establishment of the **Robertson Warehouse Co.**, Orlando, Fla., recently has been announced. This is a continuation of the merchandise warehousing div. of the **Fidelity Storage & Warehouse Co.**

Shaw Warehouse Co., Birmingham, Ala., announces the enlargement of warehouse facilities by adding 36,000 sq ft of warehouse space and 3,600 sq ft of covered platforms.

—DA—

New members of AWA's Merchandise Division are: Public Bonded Storage Whse., St. Petersburg, Fla., and Lawrence Warehouse Co., Fresno, Calif.

—DA—

Coloradans Elect Officers

The Colorado Transfer and Warehousemen's Assn. recently held its annual meeting; electing the following officers: James A. Duffy, president; K. M. Ahlstedt, vice president; L. D. Galvin, treasurer; Helen Fisher, secretary; and Harold Torgan, attorney.

BIRMINGHAM, ALA. — *Established 1913*

MEMBER MAYFLOWER WAREHOUSEMEN'S ASSOCIATION

American Transfer & Warehouse Co., Inc.

831 N. 19th Street — Birmingham 2, Ala.

Merchandise and Household Goods

Warehouse, Concrete and Steel Construction—150,000 sq. ft.—sprinklered. ADT Alarm. Private siding, Frisco railroad. Pool Car Distribution and heavy machinery hauling. 50 Trucks of All Types.

BIRMINGHAM, ALA. — 1880—Seventy-five Years of Service—1955

HARRIS WAREHOUSE CO.

• 8 South 13th St., Birmingham •

Merchandise and Household Goods

• STORAGE • CARTAGE • DISTRIBUTION • FORWARDING

Pool Cars Handled

Member of A.C.W.—A.W.A.—N.F.W.A. Agents for Allied Van Lines, Inc.

BIRMINGHAM, ALA.

For Dependable Service—

SHAW WAREHOUSE COMPANY

115 SOUTH 35TH STREET

BIRMINGHAM, ALA.

STRICKLAND TRANSFER & WAREHOUSE CO.

Home of Efficiency — ASSOCIATED WAREHOUSES INCORPORATED

112 South 14th St., Birmingham

General Merchandise Storage and Distribution
Pool Car Service a Specialty—Motor Truck Service
Centrally Located—Free Switching from All R.R.s

DOTHAN, ALA.

SECURITY BONDED WAREHOUSE

500-501 East Commerce Street

POOL CAR DISTRIBUTION

SERVING	Receiving—STORAGE—Handling.
S.E. Alabama	Motor Freight Service to all points.
S.W. Georgia	6-car Private Siding. Reciprocal Switching.
N.W. Florida	Efficient—Conscientious Branch House Service.

PHOENIX, ARIZ. — Telephone: ALpine 4-2568 Teletype PX 263

KUNKLE TRANSFER and STORAGE

324 S. Second Ave., Phoenix, Arizona

"PERSONALIZED SERVICE"

DISTRIBUTION • STORAGE • DRAYAGE

SANTA FE & SO. PAC. SIDINGS

TUCSON, ARIZ. — Telephone 2-3331

TUCSON WAREHOUSE & TRANSFER CO.

110 E. 6th St., Tucson, Ariz.

Storage—Warehousing—Distribution—Packing

59,000 sq. ft. in Tucson—Served by Rail-Motor Truck. Modern fleet of trucks from 1-60 Tons for distribution in Tucson and vicinity. Crane and Winch service for heavy lifts.

LITTLE ROCK, ARK. — New one story 90,000 sq. ft. warehouse

COMMERCIAL WAREHOUSE CO.

This ultra modern warehouse property with six car siding on the Rock Island is completely mechanized. We offer general merchandise warehousing at its best, including pool car distribution, office and display facilities and loans on stored commodities.

300-324 RECTOR STREET — LITTLE ROCK, ARK.

★ Represented by

CHICAGO 4 — 224 S. MICHIGAN AVE. — WA bash 2-3567 — Teletype CG2567

ALLIED DISTRIBUTION INC.

NEW YORK 36 — 11 WEST 42ND ST. — PE nn 6-0967

LITTLE ROCK, ARK. — ARKANSAS LARGEST WAREHOUSE — Merchandise and Household Storage

FIREPROOF-CONSTRUCTED

Pool Car Distribution—Agent, Allied Van Lines

TERMINAL WAREHOUSE CO.

Member American Warehousemen's Association
American Chain of Warehouses

LITTLE ROCK — ARKANSAS

LOS ANGELES, CAL.

Commercial Warehousing and Distribution

BEKINS

Since 1895

VAN AND STORAGE CO.

1335 SO. FIGUEROA
W. C. Elliott, Manager

LOS ANGELES, CAL. — MEMBER OF A.W.A.

PACIFIC COAST TERMINAL WAREHOUSE COMPANY

4802 LOMA VISTA AVE. — LOS ANGELES 58

MERCHANDISE STORAGE AND DISTRIBUTION

Located in the heart of the Wholesale District

LOS ANGELES, CAL. — ESTABLISHED 1918 — *Phone: TR-8282*

PACIFIC COMMERCIAL WAREHOUSE, INC.

923 E. 3rd St. — Los Angeles 13, Cal.

GENERAL MERCHANDISE STORAGE
POOL CAR DISTRIBUTION — STORAGE IN TRANSIT
DAILY HARBOR, LOCAL AND STATEWIDE HAULING
EXPERIENCED, EFFICIENT, BONDED PERSONNEL
10 Car Siding on A.T.&S.F. Railway
Sprinklered—A.D.T. Protected

LOS ANGELES, CAL.

REPUBLIC VAN & STORAGE CO., INC.

WAREHOUSING—DISTRIBUTING—CARTAGE

147,000 sq. ft. in downtown L. A., 9 car switch covered dock—small blocks of space for lease.

COAST TO COAST VAN SERVICE
332 So. Central Ave.
Export Packing & Crating — Tucker 6101

HOUSTON, TEXAS

UNION TRANSFER & STORAGE COMPANY
HOUSTON MERCHANDISE MART
2202 Nance Street — P.O. Box 305
SPRINKLERED THROUGHOUT—SUPERVISED BY A.D.T.
MOST MODERN FACILITIES IN SOUTHWEST
OFFICES YEAR AROUND AIR CONDITIONED
ASSOCIATED MERCHANDISE STORAGE
EXCLUSIVE WAREHOUSES
A FISHER G. DORSEY INTEREST

HOUSTON, TEXAS

UNIVERSAL TERMINAL WAREHOUSE CO.
1002-1008 Washington Ave., Houston
Merchandise Storage—Pool Car Distribution—Drayage Service
A.D.T. Central Station Automatic Supervisory
Sprinkler, Waterflow, and Fire Alarm Service
Watchmen, U. S. Customs Bonded, Office Space
Represented in all principal cities by
UNIVERSAL CARLOADING & DISTRIBUTING COMPANY
Division of
UNITED STATES FREIGHT CO.
Members State and Local Associations

HOUSTON, TEXAS

Member: A.W.A.—S.W.A.T.A.—N.W.A.

WALD TERMINAL WAREHOUSE CO., Inc.
3 Bonded Warehouses — 175,000 Sq. Ft.
Office: 815 Live Oak St., Houston 1, Texas
Established 1914
MERCHANDISE STORAGE • POOL CAR DISTRIBUTION
Represented by: Distribution Service, Inc.
New York—Chicago—San Francisco
EXPERIENCE • SERVICE • RESPONSIBILITY

HOUSTON, TEXAS

BENJ. S. HURWITZ, Pres.

WESTHEIMER
Transfer and Storage Co., Inc.
2205 McKinney Ave., Houston 1
Since 1883
Merchandise & Household Goods Storage—Pool Car Distribution—
Lift Van Service—20 car lengths of trackage.
Warehouses—A.D.T. Automatic Fire and Burglary Protection
Members N.F.W.A.
Agent for Allied Van Lines, Inc. State and Local Assn.

ODESSA, TEXAS

C. J. KERTH, *Mgr.*

ROCKY FORD MOVING & STORAGE
1601 E. 2nd, ODESSA, TEXAS
Merchandise and Household Storage
Pool Car Distribution
Member of NFWA—SWWTA—TMTA

SAN ANTONIO, TEXAS

Gillis-Hood Security Warehouses
1310 So. Brazos St., San Antonio 7
P. O. Box 4415 — Station A
Merchandise Storage and Distribution
Private Siding, Free Switching
Member of SWA

SAN ANTONIO, TEXAS

Merchandise **MERCHANTS** Household Goods
TRANSFER & STORAGE CO.
Merchants & Transfer Sts., San Antonio 6
Complete Storage and Distribution Service
Over 50 years of satisfactory service
Member of A.W.A.—N.F.W.A.—S.W.A.

SAN ANTONIO, TEXAS

MEMBER MAYFLOWER WAREHOUSEMEN'S ASSOCIATION
SOUTHERN TRANSFER & STORAGE CO.
P. O. BOX 4097, STA. A, SAN ANTONIO 7
Specialists in Merchandise Distribution
FIREPROOF CONSTRUCTION
BONDED STORAGE
Represented by ALLIED DISTRIBUTION INC.
CHICAGO 1 — NEW YORK 19

WICHITA FALLS, TEXAS

POOL CAR DISTRIBUTION
Since 1920
Spot stocks of Grocer Lines a Specialty
TARRY WAREHOUSE & STORAGE CO.
Wichita Falls, Texas
Members: SWATA—NFWA—AVL

OGDEN, UTAH

MEMBER OF A.W.A.
WESTERN GATEWAY STORAGE CO.
GENERAL WAREHOUSING
POOL CAR DISTRIBUTION
MERCHANDISE AND COLD STORAGE

SALT LAKE CITY, UTAH

CENTRAL WAREHOUSE
520 West 2nd South St., Salt Lake City 1
Fireproof *Sprinklered*
Merchandise Storage
Pool Car Distribution Office Facilities
Member A.W.A.

NORFOLK, VA.

Fine Warehousing Since 1911
Security Storage and Van Co.
500-530 FRONT STREET
COLLECTIONS • POOL CARS • DISTRIBUTION
MOTOR VAN AND LIFT VAN SERVICE
Member—Nat'l. F.W.A.—Allied Van Lines

NORFOLK, VA.

Established 1892 — Phone: MAdison 2-2619
SOUTHGATE STORAGE CO., INC.
SOUTHGATE TERMINAL
P. O. Box 840
MERCHANDISE STORAGE
• Fully Mechanized and Palletized • Centrally Located
• Pool Car Distribution • Private Trackage
• Custom Bonded Space • Local Truck Delivery Service
• Negotiable Receipts
Represented By American Chain of Warehouses
NEW YORK — 250 Park Ave. — PLaza 3-1234
CHICAGO — 53 W. Jackson Blvd. — HArrison 7-3688

RICHMOND, VA.

77 Years of Uninterrupted and Export Service
BROOKS TRANSFER & STORAGE CO., Inc.
1224 W. Broad St., Richmond, Va.
MERCHANDISE Warehousing and distribution. Private railroad siding. Pool car distribution. Freight truck line.
HOUSEHOLD GOODS stored, packed and shipped. Motor van service to all states.
United — MOVING WITH CARE EVERYWHERE
• 810,000 cu. ft. storage space
• Three storage warehouses
• Low insurance rates

RICHMOND, VA.

VIRGINIA BONDED
WAREHOUSE & TRANSPORTATION CO.
1709 East Cary Street—Richmond, Va.
Storage space 160,000 square feet, completely modernized. Mechanized materials handling equipment. 8-car siding Southern Railway. 8-truck platform. Pool car distribution. Lehigh cartage services. Sprinkler protected; ADT Watchman controlled.
OPERATED BY **LEHIGH** WAREHOUSE & TRANSPORTATION CO.
NEWARK • JERSEY CITY • BROOKLYN • ELIZABETH • PORT NEWARK • RICHMOND, VA.

SEATTLE, WASH.

TAYLOR-EDWARDS
WAREHOUSE & TRANSFER CO., INC.
1020 Fourth Avenue South — Seattle 4
WAREHOUSING • DISTRIBUTION • TRUCKING
Represented By
DISTRIBUTION SERVICE, INC.
New York—Chicago—San Francisco

ROANOKE, VA.

Agent: Allied Van Lines, Inc.

PITZER TRANSFER, STORAGE & FUEL CORP.
403-411 W. Salem Ave., Roanoke 5
Capacity 500 Cars
Private RR Siding
Automatic Sprinkler
Accurate Accounting
We make a specialty of Storage and Pool Car Distribution for Agents, Brokers and General Merchandise Houses.
Represented by: American Chain of Warehouses, Inc.

SPOKANE, WASH.

COMMERCIAL WAREHOUSING,
LOCAL CARTAGE
Complete commercial warehousing and drayage services, jobbers offices, only 1 block from main retail area. 75,000 sq. ft., pvt. siding, NP.
Harvey Lounsbury, Mgr.
South 124 Wall St. — Riverside 6186
LET LYON GUARD YOUR GOODS

NFWA
LYON
VAN & STORAGE CO.
AWA

SEATTLE, WASH.

EYRES TRANSFER & WAREHOUSE CO.
2203 First Ave., So., Seattle 4
Cartage — Distribution — Storage
Highest financial rating; new fireproof, A.D.T. sprinklered buildings; lowest insurance rate (10.2c); modern equipment.

SPOKANE, WASH.

MEMBER FIRM

PACIFIC NATIONAL WAREHOUSES, INC.
offering
ONE Coordinated Warehousing and Distribution Service . . .
Serving the Nation in the Pacific Northwest

RIVERSIDE WAREHOUSES, INC.
E. 41 Gray Avenue, Spokane 8
Four Central Warehouses Serving Spokane and the Inland Empire . . . with a complete warehousing, distribution and trucking service.

Represented by
CHICAGO 2 — 324 S. MICHIGAN AVE. — WAbash 2-3367
ALLIED DISTRIBUTION INC.
NEW YORK 19 — 14 WEST 43RD ST. — PLaza 8-0969

SEATTLE, WASH.

SEATTLE TRANSFER CO.
2250 Occidental Avenue
Lloyd Transfer Co.
Pool Car Division
Standard Warehouse Co.
Storage Division
DIVISION OF
PACIFIC NATIONAL WAREHOUSES, Inc.
Portland Eugene Klamath Falls Medford Salem
Seattle Spokane Tacoma Bellingham
Nampa Vancouver, B. C. Boise Butte Bend

SEATTLE, WASH. — Lloyd X. Coder, Pres. — Ellis L. Coder, Secy.-Treas.

SYSTEM Transfer & Storage Co.
Established 1919
2601-11 Second Avenue, Seattle 1
Complete Drayage, Storage and Distribution Service
"System Service Satisfies"
Member—A.W.A.—W.S.W.A.—S.T.O.A.

SPOKANE, WASH.

TAYLOR-EDWARDS
WAREHOUSE & TRANSFER CO., INC.
800 N. Hamilton St. — Spokane 11
WAREHOUSING • DISTRIBUTION • TRUCKING
Represented By
DISTRIBUTION SERVICE, INC.
New York—Chicago—San Francisco

. . . Law

(Continued from Page 64)

evidence of a substantial nature that there is a public necessity for the additional service granted, or that public convenience would be promoted by the granting of the application, or that reasonable service is not being rendered."

Fire Dept. to exercise greater degree of citizen and property care when returning from a fire

In the case of F—— v. C—— of C——, 126 N. E. 73, it was disclosed that a pedestrian, who was crossing an intersecting street, was struck and run over by a motor hose truck which was returning to its station. The pedestrian was killed and his dependents brought suit contending that the city was liable for the "negligent" acts of the driver who was returning from a fire and had no good reason to be negligent. The dependents, also, introduced testimony proving that the truck was driven in a reckless and negligent manner, cutting a corner sharply at a high rate of speed, and on the wrong side of the street.

The lower court held the municipality not liable for the negligence of the driver but the higher court reversed this verdict, saying:

"It would, of course, be conceded that if the truck had been owned and driven by the servant of a private corporation the liability would be fixed; and it is difficult to understand the justice of a rule which denies to a citizen the protection of the law and the remedy guaranteed by the Constitution when injury is thus done him by the servant of a city instead of the servant of a private Corp.

For comparison, see K—— v. C—— of B——, 155 Pac. (2d) 493. Here a man named K—— sued a municipality for the injuries suffered by him as a result of a collision between his motor truck and a garbage truck owned and operated by the city. As a result of the accident, K—— suffered physical injury, and damage to his car.

During the trial testimony was given that the city's garbage truck was being driven by an inexperienced youth nineteen years of age who had no driver's license. The truck was being negligently driven at an excessive speed and upon rounding a curve the youthful driver lost control of the truck and collided with the truck being driven by K——. Although it was admitted that the driver of the city truck was grossly negligent, the higher court refused to hold the city liable and said:

"We hold that in maintaining and operating a garbage collection and disposal system, respondent (city) was exercising a governmental function."

(Resume Reading on Page 65)